The Russian Salmon Industry
An Initial Review

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Foreword

In an effort to implement the recommendations of the Salmon Strategy Task Force which gave priority to providing credible market intelligence to the Alaska salmon industry, the Alaska Division of Economic Development is pleased to publish this report on "The Russian Salmon Industry."

Alaska's share of the world salmon market has declined substantially over the last five years. In most cases market share has been lost to increased farmed salmon production, however, Alaska's wild salmon competitors have made inroads as well. Because Russian salmon runs are the world's only other source of wild salmon comparable in scale to Alaska's, it is important that we better understand this new competitor to the world salmon market.

Where once nearly all of Russia's salmon was consumed within the borders of the former Soviet Union, significant changes in the political and economic structure of Russia have caused an increase in salmon exports to Japan and Europe. But despite Russia's emergence as a new competitor in the world salmon market, Russia and Alaska share common interests in international fishery management issues as well as in research, technology and investment opportunities. This report is an attempt to better understand Russian salmon production, management, regulation, and harvesting and processing organizations. It also tries to quantify Russian salmon product forms and export markets as well as threats caused by over-harvesting and pollution.

Because rapidly changing conditions in Russia have not stabilized sufficiently to make available regularly published production and market information, this report provides only an initial review. However, the authors conclude that rapid expansion of Russian salmon harvests and production seems unlikely. Because Russian sockeye harvests are much smaller than Alaska sockeye harvests, expanded Russian sockeye exports to Japan should not be a major cause for concern for the Alaska salmon industry. However, continued large Russian pink harvests pose a long-term threat to U.S. export markets.

An important contribution made by the authors of this report is that they have tried to identify not only what is known about the Russian salmon industry, but what questions remain unanswered. In doing this, it is hoped that this report will provide a better understanding of an emerging competitor, and help facilitate an improved exchange of fisheries information between Russia and Alaska.

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Fisheries Development Specialist

I. INTRODUCTION

In recent years the Alaska salmon industry has become increasingly concerned about Russian salmon. Russia has large salmon runs, comparable in scale to Alaska's. Exports of Russian salmon to Japan and other markets have been increasing. The emergence of Russia as a potential new competitor in world salmon markets comes at a time when the Alaska salmon industry is already facing fundamental market changes as the result of competition from farmed salmon.

The Alaska fishing industry's interest in Russian salmon—and other species—arises because of Russia's importance as a potential competitor. However, the Russian fishing industry—from harvesting to processing to distribution also represents an investment opportunity and a major potential market for suppliers to all sectors of the fishing industry, from boat yards to manufacturers of processing equipment. Russia and Alaska also have a common interest in numerous international fisheries management issues as well as share a variety of common research interests related to fisheries management, harvesting and processing technology, and marketing.

Despite growing interest, it has not been easy for Alaskans to get answers to some of their most basic questions about the Russian salmon industry, including what kind of competition and opportunities Russian salmon represents for Alaska—now and in the future. With rapid political and economic change in Russia, fisheries management and the fishing industry are changing rapidly, and it has been difficult even for Americans who have visited Russia and had fisheries business dealings there to form a clear, overall picture of the state of the salmon industry and how it is changing.

This report provides an initial review of some of the information that has emerged about the Russian salmon industry. It is based primarily on articles which have appeared in the Russian, Japanese, and American press; and, the observations of the authors and a few other visitors who have had the opportunity to observe Russian salmon operations firsthand.

Readers will discover that this report leaves many questions unanswered. We have tried to identify not only what we know but also what we don't know about the Russian salmon industry. This report should be viewed only as a first step in developing an understanding of the Russian salmon industry. More visits to Russia and systematic collection of additional information will be needed to complete the task that this report begins in a very modest way. We would welcome any comments, corrections, or additional information that readers of this report may be able to provide about the Russian salmon industry.

This report addresses only the Russian Far East salmon industry. Harvests of Atlantic salmon in western Russia represent only about one percent of total Russian salmon harvests.

Sources of Information for this Report

In preparing this report, we were not able to find any systematic review or analysis of the Russian salmon industry in either English or Russian which provides anything approaching a comprehensive up-to-date description of the Russian Far East salmon industry or how it is changing.

This report is based partly on information disseminated in fishing industry publications and newsletters. Three of the most important of these were the Pacific Rim Fisheries Report published by the University of Alaska Anchorage's Center for International Business, which provides articles of abstracts from Russian newspapers; Bill Atkinson's News Report, which provides translations of articles from the Japanese fisheries trade press; and the Weekly Fish Report of the Alaska State Office in Tokyo, which reviews information published in the Japanese fisheries trade press.

We also found information about Russian salmon fisheries in two publications which report on developments in the Russian Far East: the RA Report (formerly the SUPAR report) published by the University of Hawaii's Center for Russia in Asia, and the Russian Far East News published by the University of Alaska Anchorage's Center for International Business).

Although these publications provide a great deal of information about the Russian salmon industry, the information tends to be narrowly focused on specific topics such as plans for the construction of a particular hatchery, salmon harvests for the current year by a particular fleet, or proposals for a specific change in export regulations.

We obtained Russian salmon harvest data for the years 1980-1992 from statistical publications of the Food and Agriculture Organization of the United Nations (FAO). We obtained detailed harvest data for 1993 from a recent publication of the North Pacific Anadromous Fish Commission (Statistics of Russian Catches of Pacific Salmon 1993, NPAFC Doc. 103, Pacific Research Institute of Fisheries and Oceanography (TINRO) 1994).

We were not able to obtain any official Russian publications providing data on Russian salmon production (fresh, frozen, canned, etc.), exports or prices. Japanese and European import data provide information on Russian exports to Japan and Europe. Japanese and Russian press articles also provide some data on Russian production and prices.

One of the authors of this report, Terry Johnson, has visited salmon fishing and processing operations in several parts of Kamchatka and interviewed several Russian fishery officials. We have quoted from his descriptions of Russian salmon harvesting and processing operations published in several press articles, as well as from his personal notes. We have also quoted from the observations of Peter Christiansen, a Fellow of the Institute of Current World Affairs who in 1993 was living in Petropavlovsk-Kamchatsky researching developments in the Russian Far East fishing industry.

We also interviewed Alexander Pilyasov, an Economist with the Northeast Interdisciplinary Scientific Research Institute of the Russian Academy of Sciences, located in Magadan, who was a visiting research scholar at the University of Alaska Anchorage during the fall of 1994.

Although this review of the Russian salmon fishery is broader in scope than any others of which we are aware, it leaves many questions unanswered. We have not had the opportunity to interview Russian fisheries managers, Russian fisheries scientists, or members of the Russian salmon industry in a systematic way. Nor have we had the opportunity to interview members of the American or Japanese fishing industry who have been involved in the the Russian salmon industry. These are the logical next steps in furthering our understanding of the Russian salmon industry.

II. RUSSIAN SALMON HARVESTS

Russian Far East Fisheries

In 1992, Russia ranked fifth among the fishing nations of the world, after China, Japan, Peru, and Chile; and just ahead of the United States. Annual Russian per capita fish consumption is about 61 pounds (live weight equivalent), compared with 47 pounds for the United States.[1]

Much of the Russian fishing industry is located in the Russian Far East, in Kamchatka Oblast, Sakhalin Oblast, Primorski Krai, Khabarovsk Krai and Magadan Oblast.[2] Russian fish harvests in the North Pacific account for about half of all Russian harvests. The volume harvested in the North Pacific is about five times as great as in the North Atlantic.[3] Fisheries account for as much as 40 to 50 percent of primary industrial production in some areas of the Russian Far East.[4]

Russian Salmon Harvests

During the period 1980-1992, Russian salmon harvests averaged 124 thousand tons per year, or about 44 percent of Alaska salmon harvests.[5,6] The total Russian harvest ranged from as high as 78 percent of the Alaska harvest to as low as 27 percent of the Alaska harvest.

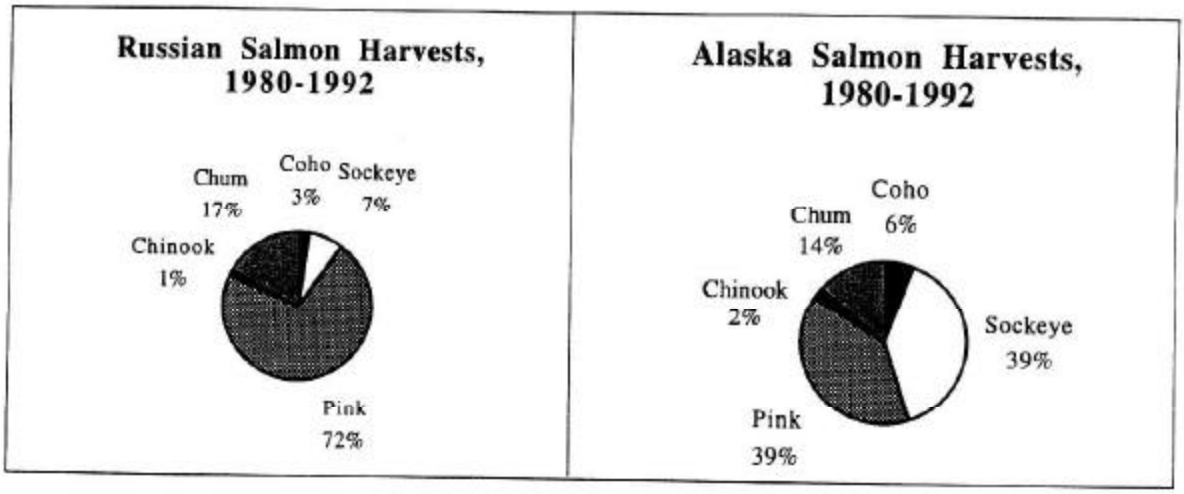
Average Volume of Russian and Alaska Salmon Harvests 1980-1992 (metric tons)

			Russian harvest as % of Alaska harvest		
Species	Russia	Alaska	Average	Highest Year	Lowest Year
Chinook	1,481	5,828	25%	42%	18%
Sockeye	8,811	109,106	8%	12%	3%
Coho	3,717	17,151	22%	32%	12%
Pink	88,747	111,817	79%	142%	34%
Chum	20,672	38,226	54%	95%	29%
TOTAL	124,471	282,128	44%	78%	27%

ISER file: RUSSIAN SALMON HARVESTS.

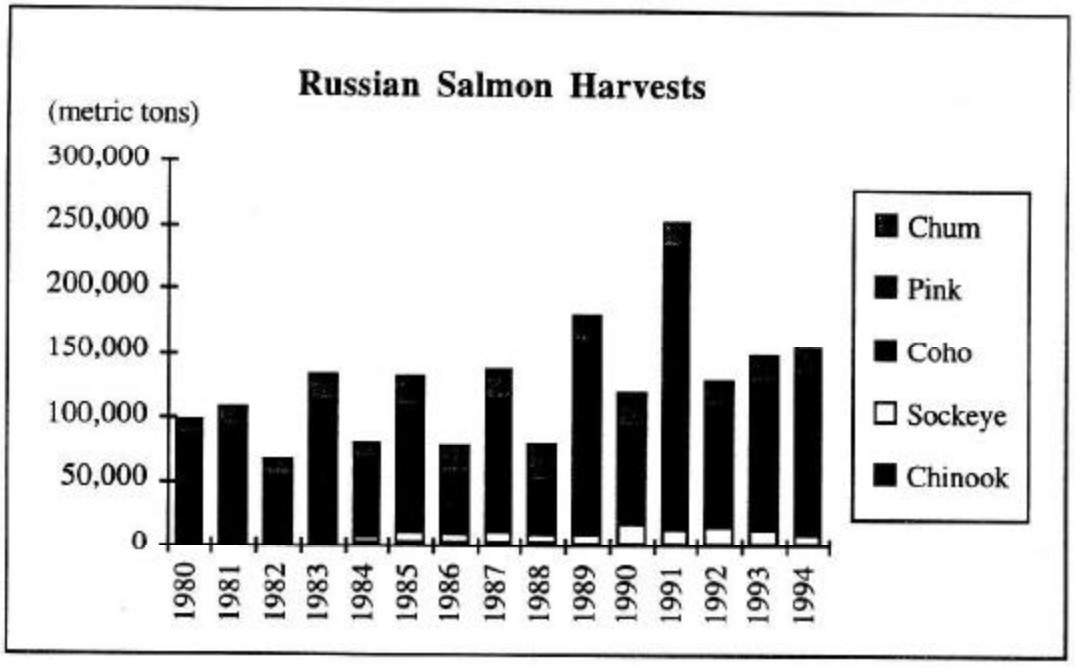
The share of different species in the Russian salmon harvest is significantly different from Alaska. Whereas pink and sockeye salmon accounted for approximately equal shares of the total Alaska harvest volume, pink salmon accounted for almost three-quarters of the Russian harvest volume while sockeye accounted for only 7 percent. Chum salmon were the second most important species in the Russian harvest, accounting for 17 percent of average volume.

1 U.S. Department of Commerce, National Marine Fisheries Service, Fisheries of the United States, 1993, May 1994, pages 34, 80.
2 The terms Oblast and Krai have approximately the same meaning as "province" or "state."
3 Food and Agriculture Organization of the United Nations, FAO Yearbook: Fishery Statistics: Catches and Landings, Volume 64, 1987, page 391.
4 Japanese press article cited in Bill Atkinson's News Report, May 19, 1993.
5 Throughout this report we use the terms "Russia" and "Russian" to refer to what was formerly the Union of Soviet Socialist Republics (USSR). Almost all of the salmon industry of the USSR was located in the Russian Far East, except for a small harvest of wild Atlantic salmon in the Baltic Sea.
6 The data for total Russian salmon harvests during the period 1980-1992 presented in this chapter are data reported by the Food and Agriculture Organization of the United Nations (FAO). We do not have any independent verification of how accurate they may be.



Russian harvests of pink salmon average slightly less than Alaska, although they were higher than Alaska harvests in 1991. Russian harvests of other species are significantly lower than Alaska harvests.

As in Alaska, there are wide variations from year to year in Russian salmon harvests. Pink salmon display a very marked two-year cycle. Odd-year pink salmon harvests are dramatically higher than even-year harvests. After accounting for the two-year pink salmon cycle, Russian harvests rose significantly after the mid 1980s. The 1991 pink salmon harvest was huge, as was also the case in Alaska.



Russian Salmon Harvests, by Species, 1980-1994 (metric tons)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Chinook	1,057	1,399	1,342	1,778	1,683	1,831	2,217	1,661	1,617	1,241	1,250	919	1,261	1,308	1,038
Sockeye	3,888	3,833	2,967	4,256	6,299	9,622	8,100	11,473	8,465	9,856	16,457	13,605	15,716	13,981	10,254
Coho	2,486	3,623	3,798	3,579	4,843	5,993	4,924	3,730	2,734	2,965	2,253	2,803	4,584	2,652	1,706
Pink	77,367	84,470	45,140	102,207	54,665	90,905	40,399	97,713	37,751	145,625	72,850	217,742	86,879	109,292	120,149
Chum	14,556	14,740	13,969	21,799	13,742	23,537	23,438	23,672	30,490	21,651	27,142	18,713	21,291	22,971	22,936
Atlantic	1,630	1,197	675	942	1,185	1,198	1,205	1,209	974	1,193	1,214	564	382		
Total	100,984	109,262	67,891	134,561	82,417	133,086	80,283	139,458	82,031	182,531	121,166	254,346	130,113	150,204	156,083

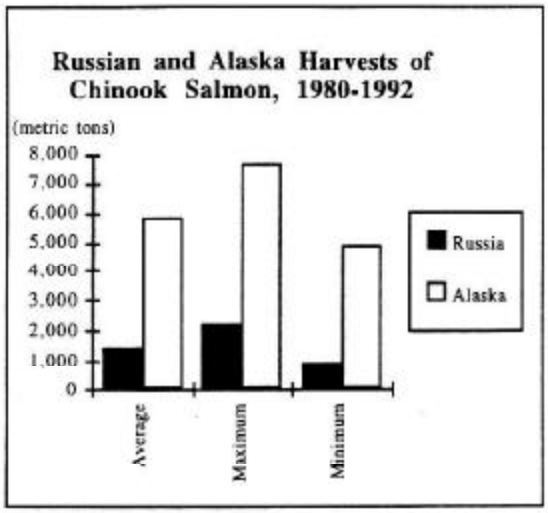
Sources: 1982-1985: FAO: Fishery Statistics: Catches and Landings, Vol. 64, 1987, page 488; 1986-1991: FAO, Fishery Statistics: Catches and Landings, Vol. 72, 1991, page 636. 1980-1981 and 1991-92: FAO data provided by Alaska Center for International Business.
1993: Statistics of Russian Catches of Pacific Salmon 1993. (NPAFC Doc. 103), Pacific Research Institute of Fisheries and Oceanography (TINRO) 1994; 1994: Data provided by Shawneen Conover, Alaska Center for International Business, April 1995. ISER file: Russian Salmon Harvests.

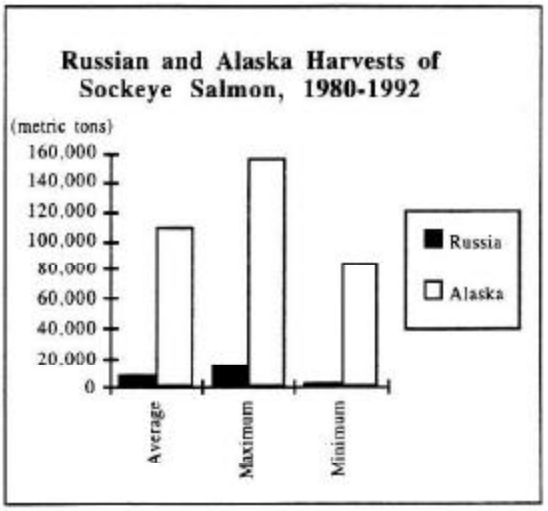
Alaska Salmon Harvests, by Species, 1980-1994 (metric tons)

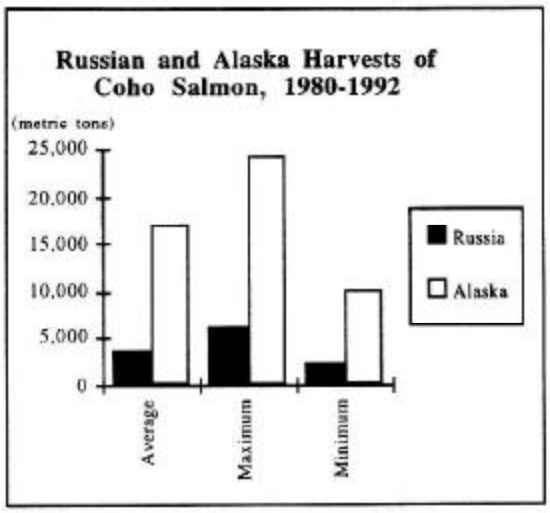
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Chinook	5,670	7,139	7,668	7,114	5,681	6,113	5,313	6,025	4,950	5,132	5,208	4,866	4,882	5,021	5,389
Sockeye	84,687	102,493	85,526	138,638	101,016	100,475	88,250	101,983	85,527	118,240	138,787	115,903	156,858	171,963	132,732
Coho	10,172	11,724	21,111	12,153	20,192	21,438	21,139	11,481	16,082	15,049	18,154	19,879	24,385	16,611	33,326
Pink	98,859	111,117	99,404	88,035	125,502	138,011	117,597	74,758	80,696	150,352	123,336	153,697	92,262	152,059	165,720
Chum	32,569	45,152	41,363	35,887	47,214	37,814	44,043	36,452	55,172	27,951	28,442	31,569	33,307	38,039	53,879
Atlantic															
Total	231,957	277,624	255,072	281,827	299,604	303,851	276,342	230,699	242,427	316,724	313,927	325,915	311,693	383,693	391,047

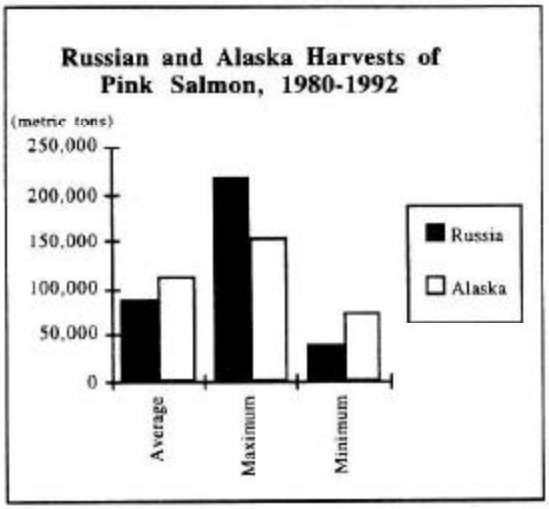
Source: 1980-92: Commercial Fisheries Entry Commission; 1993-94: Alaska Department of Fish and Game.

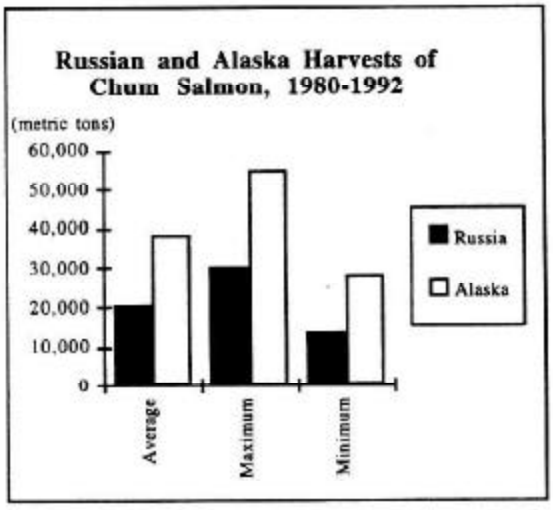
ISER file: RUSSIAN SALMON HARVESTS.

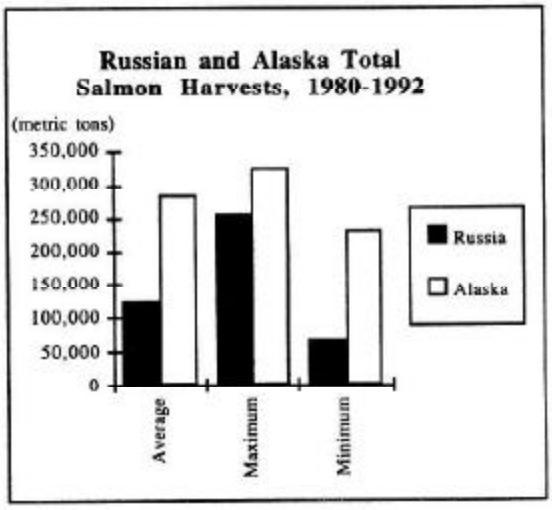

Russian and Alaska Harvests of Chinook Salmon, 1980-1992
(metric tons)
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
Russia
Alaska
Average
Maximum
Minimum


Russian and Alaska Harvests of Sockeye Salmon, 1980-1992
(metric tons)
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
Russia
Alaska
Average
Maximum
Minimum


Russian and Alaska Harvests of Coho Salmon, 1980-1992
(metric tons)
25,000
20,000
15,000
10,000
5,000
0
Russia
Alaska
Average
Maximum
Minimum


Russian and Alaska Harvests of Pink Salmon, 1980-1992
(metric tons)
250,000
200,000
150,000
100,000
50,000
0
Russia
Alaska
Average
Maximum
Minimum


Russian and Alaska Harvests of Chum Salmon, 1980-1992
(metric tons)
60,000
50,000
40,000
30,000
20,000
10,000
0
Russia
Alaska
Average
Maximum
Minimum


Russian and Alaska Total Salmon Harvests, 1980-1992
(metric tons)
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
Russia
Alaska
Average
Maximum
Minimum

Historical Russian Salmon Harvests

Understanding historical Russian salmon harvests is complicated by the fact that reliable historical Russian harvest data were only recently made available. During the Soviet era, offical Soviet harvest statistics were limited and contradictory.[7] In addition, in the first half of this century, the Japanese harvested large numbers of Russian salmon in Russian territorial waters and on the high seas.

The table below shows estimates recently prepared by a Russian scientist of harvests of pink salmon of Russian origin during the years 1915-43. According to these estimates, there was substantial year-to-year variation in harvests. Total Russian pink salmon harvests peaked at 372 million in 1939, more than four times as high as the Russian domestic harvest reported in 1993.

Russian and Japanese Commercial Harvest of Pink Salmon 1915-1943 (millions of fish)

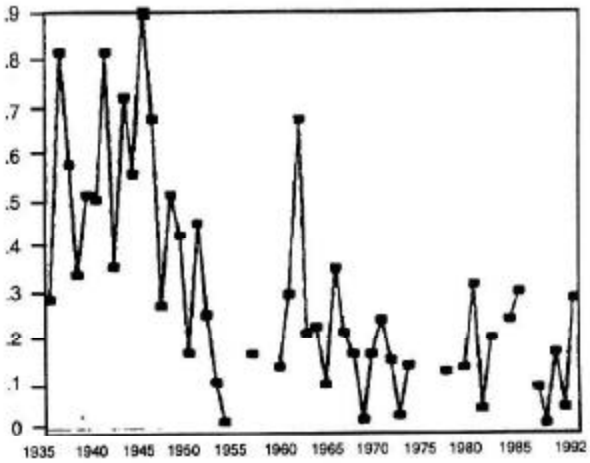
Year	Russian inshore fishing	Japanese fishing in Russian territorial waters	Japanese high seas fishing	Total
1915	53.6	64.7	-	118.3
1916	77.2	84.9	-	162.1
1921	59.6	78.7	-	138.3
1923	30.5	31.3	-	61.8
1924	101.1	102.4	-	203.5
1926	109.3	111.2	-	220.5
1927	29.2	48.3	-	77.5
1933	31.1	37.4	4.3	72.8
1934	73.8	97.5	20.0	191.3
1935	46.9	113.8	34.5	195.2
1936	43.7	73.6	41.0	158.3
1937	58.3	138.3	74.0	270.6
1938	59.7	115.4	61.0	236.1
1939	60.4	197.0	115.0	372.4
1940	39.0	53.0	19.0	111.0
1941	59.5	121.0	56.0	236.5
1942	59.0	70.5	38.0	167.5
1943	88.6	113.9	57.0	259.5

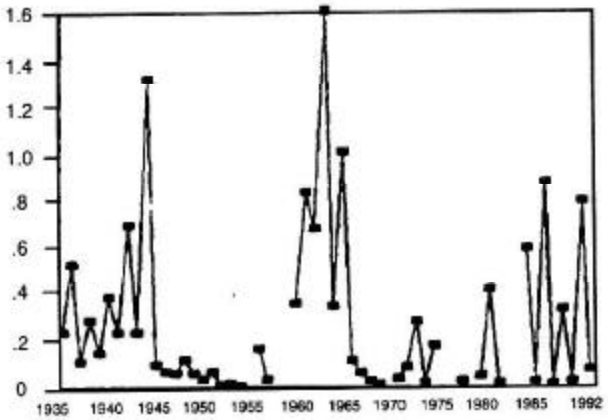
Source: A.I. Chigirinsky, "Asiatic Pink Salmon: Commercial Catch in Current Century." (NPAFC Doc. 105), Pacific Research Institute of Fishery and Oceanography (TINRO) 1994. ISER file: Pink harvests, 1915-43.

The graphs on the following page show chum and pink salmon harvests at a fish processing plant in Magadan Oblast from 1935 through 1992. The graphs show substantial variation from year to year and from decade to decade in total harvests. Chum salmon harvests in recent years have been well below the levels of the 1930s and 1940s, while pink salmon harvests are comparable or higher.

7 A.I. Chigirinsky, "Asiatic Pink Salmon: Commercial Catch in Current Century." (NPAFC Doc. 105), Pacific Research Institute of Fishery and Oceanography (TINRO) 1994.

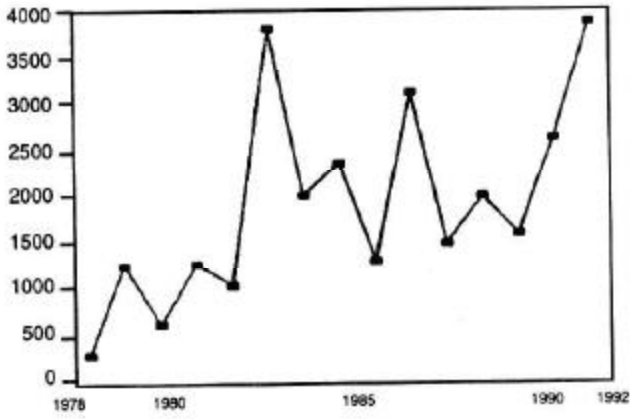
Chum Salmon Harvests at the North Evensk Fish Factory, 1935-1992 (000 tons)





Pink Salmon Harvests at the North Evensk Fish Factory, 1935-1992 (000 tons)

Total Salmon Harvests by Magadanrybprom, 1978-1992 (tons)



Source: Alexander Pilyasov, Dynamics of Industrial Production in Magadan Oblast, 1932-1992, Magadan, Northeastern Complex Scientific Research Institute, 1993.

Geographic Location of Russian Salmon Harvests

Detailed regional harvest data for 1993, shown in the table and graphs on the following page, show that in 1993 Kamchatka accounted for about half of total Russian salmon harvests (by volume), while Sakhalin accounted for almost one-third of Russian harvests. Magadan and Khabarovsk each accounted for about one-tenth of total harvests.

Russia's sockeye landings occur almost entirely in, and adjacent to, Kamchatka Peninsula streams. Of all those streams, the Ozernaya River supports about three-quarters of the fishery by itself. The Ozernaya sockeye run has produced catches of as few as one million and as many as 6 million fish in recent years.[8]

Most Russian pink salmon harvests in 1993 took place in Kamchatka and Sakhalin Island. Chum salmon harvests were concentrated in Khabarovsk and Magadan regions.

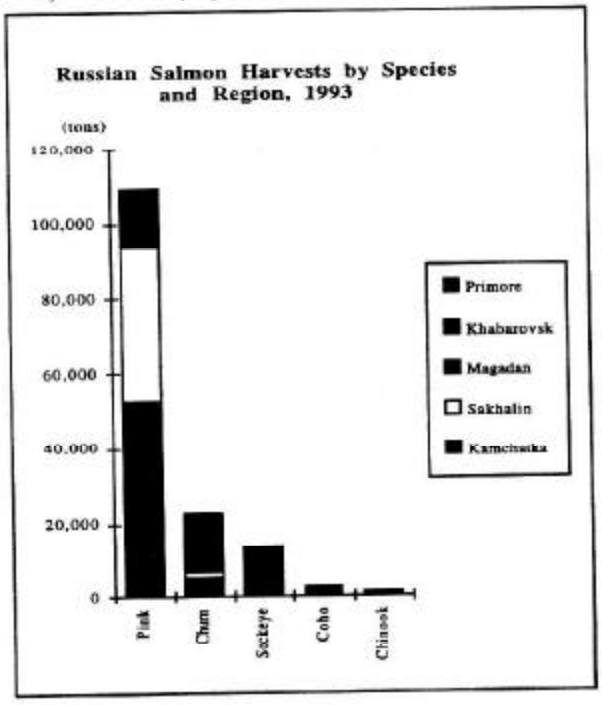
Source: Alaska Center for International Business, Russian Far East News.

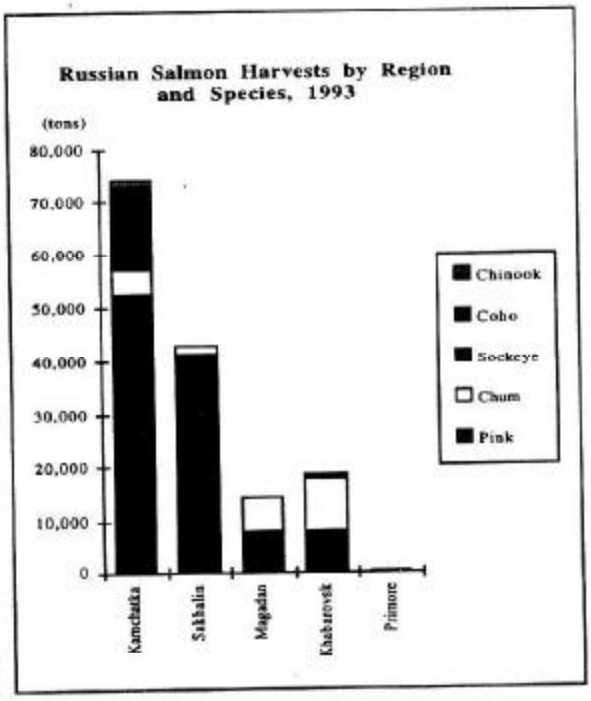
8 Terry Johnson, "The Russian Bear Goes Fishing," Pacific Fishing, March 1993.

Russian Far East Salmon Harvest by Species, Region & District, 1993

	Pink		Chum		Sockeye		Coho		Chinook		Total	
Region & district	fish (000)	tons	fish (000)	tons	fish (000)	tons	fish (000)	tons	fish (000)	tons	fish (000)	tons
1. Kamchatka	43,518	52,311	1,325	4,690	5,203	13,872	626	1,878	156	1,308	50,828	74,059
1.1 Western coast	107	138	293	1,005	3,774	10,219	122	374	11	111	4,307	11,847
1.2 Eastern coast	43,411	52,173	1,032	3,685	1,429	3,653	505	1,504	145	1,197	46,521	62,212
1.2.1 Bering Sea	42,618	51,142	711	2,528	250	732	15	46	8	90	43,603	54,538
1.2.2 Pacific Ocean	793	1,031	321	1,157	1,179	2,921	489	1,458	137	1,107	2,918	7,674
2. Sakhalin	28,350	41,248	555	1,735							28,905	42,983
2.1 Western coast	3,550	4,277	500	1,519							4,050	5,796
2.1.1 Northwest	1,010	1,212	432	1,266							1,442	2,478
2.1.2 Southwest	2,540	3,065	68	253							2,608	3,318
2.2 Eastern coast	19,250	28,030	39	156							19,289	28,186
2.2.1 Aniva Bay	2,290	3,520									2,290	3,520
2.2.2 Southeast	7,710	11,340									7,710	11,340
2.2.3 Terpeniya Bay	8,000	11,600									8,000	11,600
2.2.4 Northeast	1,250	1,570	39	156							1,289	1,726
2.3 Southern Kuril	5,550	8,941	16	60							5,566	9,001
3. Magadan	5,910	7,913	2,055	6,369	13	40	12	53			7,990	14,375
3.1 North Okhotsk Sea	5,910	7,913	733	2,669	13	40	12	53			6,668	10,675
3.2 Anadyr			1,322	3,700							1,322	3,700
4. Khabarovsk	5,178	7,783	3,087	9,934	23	69	177	721			8,464	18,507
4.1 Okhotsk district	2,590	3,626	1,534	4,846	23	69	177	721			4,324	9,262
4.2 Amur district	138	164	1,553	5,088							1,691	5,252
4.3 Sovietgavan	2,450	3,993									2,450	3,993
5. Primore	25	37	66	243							90	280
TOTAL	82,980	109,292	7,088	22,971	5,239	13,981	815	2,652	156	1,308	96,278	150,204

Source: Statistics of Russian Catches of Pacific Salmon 1993. (NPAFC Doc. 103), Pacific Research Institute of Fisheries and Oceanography (TINRO) 1994.
ISER file: Harvests by region, 1993.





Russian Sport and Subsistence Salmon Harvests

As shown in the table on the following page, Russian sport and subsistence salmon harvests account for about four percent of total Russian salmon harvests. The sport and subsistence harvest share is highest for chum salmon, at about 16 percent.

Future Russian Salmon Harvests

It is difficult to predict how Russian salmon harvests may change in the future. As in Alaska, harvests are affected by climatic and oceanographic conditions. The fact that historic, peak harvests were well above current levels suggest that significantly higher harvests are theoretically possible. However, Russian scientists are projecting declining production of most salmon species through this decade.[9] Future Russian harvests will also be affected by hatchery development and harvesting technology, as we discuss in subsequent chapter so this report.

Environmental Conditions

Parts of Russia suffered severe environmental degradation under the Soviet system. We do not know the extent to which environmental degradation may threaten salmon habitat in the remote areas of the Russian Far East where the salmon industry is based. According to Christiansen:[10]

> Loss of spawning grounds poses another threat, and a very serious one. Consider that the extractive industries now under review for the Russian Far East involve gold and mineral mining, and logging. All of these must be tightly controlled lest they destroy salmon spawning grounds, but the chances of this are poor in Russia's present state.

However, Terry Johnson's observations during a visit to a remote Kamchatka fishing operation suggests that in at least that area of Kamchatka, the environment was in good shape:[11]

> Ivan says that the runs on the Vahil are pretty stable, although much of the fishery resource of the Russian Far East has been harmed by environmental degradation and by high seas interceptions. The river valley, I note, is practically in virgin condition, with no logging and no roads, and an abundance of wildlife which points to a healthy system. Spotted seals in the surf, bear tracks on the beach, and an abundance of water birds reinforce this impression.

According to Magadan-based economist Alexander Pilyasov:

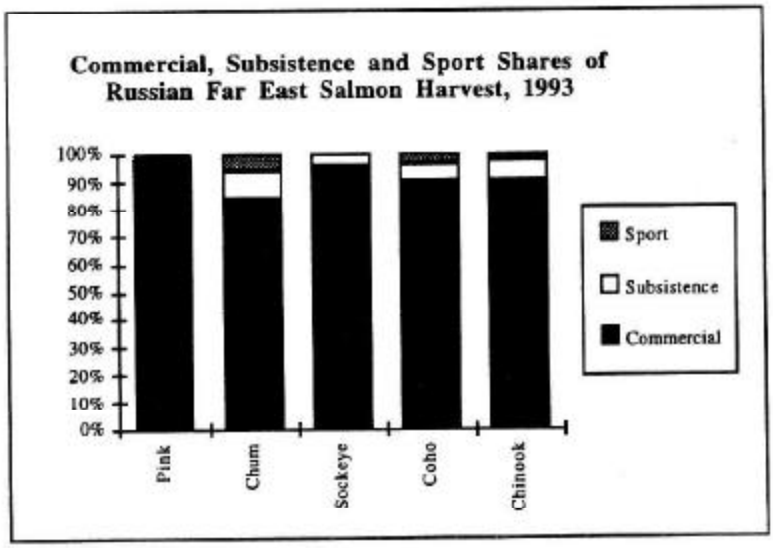
> In Magadan Oblast, we are seeing a decline in agriculture and in placer mining. In my opinion, conditions for fishing are favorable. As for the past environmental damage, I hope that with the general decline of agriculture and mining in Magadan Oblast, the danger for fishing will be diminished.

9 Terry Johnson, "The Russian Bear Goes Fishing," *Pacific Fishing*, March 1993.
10 Peter Christiansen, Letter to Dr. Evelyn Pinkerton, November 2, 1993.
11 Terry Johnson, "Fishing with Ivan: Alaskan looks at the Competition," *Kodiak Daily Mirror*, March 15, 1994.

Russian Far East Commercial, Subsistence and Sport Salmon Harvest, 1993 (number of fish)

	Pink	Chum	Sockeye	Coho	Chinook	Cherry	Total
Commercial							
Kamchatka	43,517,800	1,324,900	5,202,800	626,200	156,200		50,827,900
Sakhalin	28,350,000	555,400					28,905,400
Magadan	5,910,000	2,055,000	13,000	12,000			7,990,000
Khabarovsk	5,177,500	3,086,800	23,000	177,000			8,464,300
Primore	24,600	65,600					90,200
Total	**82,979,900**	**7,087,700**	**5,238,800**	**815,200**	**156,200**		**96,277,800**
Subsistence							
Kamchatka	736,637	201,067	218,962	54,934	13,166		1,224,766
Sakhalin	72,022	38,211					110,233
Magadan	541,516						541,516
Khabarovsk	23,500						23,500
Primore	8,067	8,928					16,995
Total	**816,726**	**813,222**	**218,962**	**54,934**	**13,166**		**1,917,010**
Sport							
Kamchatka	20,912	9,886	20,906	5,501	3,787		60,992
Sakhalin	350,049	10,610		300			360,959
Magadan	377,076	266,545		22,867			666,488
Khabarovsk	7,000	210,852		8,934			226,786
Primore	4,400	10,800				3,500	18,700
Total	**759,437**	**508,693**	**20,906**	**37,602**	**3,787**	**3,500**	**1,333,925**
Total							
Kamchatka	44,275,349	1,535,853	5,442,668	686,635	173,153		52,113,658
Sakhalin	28,772,071	604,221		300			29,376,592
Magadan	6,287,076	2,863,061	13,000	34,867			9,198,004
Khabarovsk	5,184,500	3,321,152	23,000	185,934			8,714,586
Primore	37,067	85,328				3,500	125,895
Total	**84,556,063**	**8,409,615**	**5,478,668**	**907,736**	**173,153**	**3,500**	**99,528,735**

Source: Statistics of Russian Catches of Pacific Salmon 1993. (NPAFC Doc. 103), Pacific Research Institute of Fisheries and Oceanography (TINRO) 1994. ISER file: Comm, sport, subs.



Enforcement of Harvest Regulations

Another factor which could affect future salmon harvests is over-fishing resulting from lack of enforcement of harvest regulations. Press accounts and other sources indicate that in recent years, enforcement efforts have been strained by lack of fuel, vessels, and financial resources. According to Peter Christiansen:[12]

> The Russian inability to bring the fishing activity in their waters under control, and habitat destruction, pose the biggest threats to a competitive Russian salmon fishing industry.

As we discuss in the next chapter, there clearly is some enforcement of salmon harvest regulations. It is uncertain the extent to which lack of enforcement represents a real threat to Russian salmon resources.

Havesting and Processing Capacity

Some observers have suggested that at present, Russian fisheries resources are protected mainly by the reduced catching power of Russian fleets:[13]

> According to a representative of TINRO, the current relatively stable resource condition in Russian fisheries is more the result of the lack of fuel and reduced fishing effort following perestroika, rather than due to a healthy resource itself.

According to Alexander Pilyasov:

> I would expect salmon harvests to increase. Even in Magadan Oblast, there are a lot of small rivers where the catch can be easily increased. These places were abandoned in the past where "settlements without prospects" were liquidated (the Soviet policy of relocating the population of small settlements believed to be uneconomic to larger regional towns). Now the question is how to increase harvests on these remote rivers. I believe that small businesses can simplify the catch in these remote rivers. Because of this I expect that the total harvest, especially for pink salmon, will increase. It's very easy to increase its catch. Every other year, the returns of pinks are very high in Magadan, but lack of equipment prevents their full harvest.

12 Peter H. Christiansen, Letter to Dr. Evelyn Pinkerton, School of Community and Regional Planning, Vancouver, BC, November 2, 1993.

13 *Bill Atkinson's News Report*, May 19, 1993.

III. RUSSIAN SALMON MANAGEMENT, INDUSTRY REGULATION, AND HARVESTING AND PROCESSING ORGANIZATIONS

The political and economic changes in Russia beginning with *perestroika* and continuing since the breakup of the Soviet Union have brought about rapid change in the management of Russian fisheries. Some management institutions disintegrated without being replaced by new systems.[14] The old system of fisheries management, centralized in Moscow, is breaking down, but the form of the new system which will replace it is not yet clear. Thus any description of Russian salmon management must be qualified as a snapshot of a changing system.

Fisheries Management Under the Soviet Union

Under the Soviet system, most fishing was carried out by large, regional fishing companies operating under the umbrella of the Ministry of Fisheries.[15] A 1993 article in Seafood Leader described fisheries management under the Soviet system as follows:[16]

> Here's how the system used to work. Central planners in Moscow [at the Ministry of Fisheries] would decide how much fish could be caught, how much was needed to feed the Soviet population and how much could be sold abroad to generate hard currency. Then the Ministry of Fisheries [MOF] doled out quotas to its regional bureaucracies. In the Far East, *Dalryba* was its bureaucratic overload. *Dalryba*, in turn, divvied up the fish to the provincial fishing organizations in the provinces of Kamchatka, Primorsky, Khabarovsk, Sakhalin and Magadan.
>
> In the case of Kamchatka, Moscow's marching orders were carried out by the powerful state regional fishing enterprise *Kamchatrybprom*, which in effect "owned" a half dozen or so fishing companies and cooperatives, the latter called kolkhozes. In Petropavlovsk, the major fishing operations were *Tralflot (UTRF), Okeanrybflot, Rybkholodflot, UPF-KMPO* and the Lenin Kolkhoz. Responsible for its workers from cradle to grave, each fishing operation employed thousands of workers and owned not only boats, docks and shipyards, but also apartments, stores, theaters, restaurants and resorts.
>
> Each enterprise was told what to fish, when. There was no incentive to do anything else. Fish that were to be sold on the domestic market were usually either salted or canned, since the transportation and distribution system inside the USSR was crude and cold storages were few and far between. Fish that were destined for export were usually frozen at sea and shipped wherever *Sovrybflot* [the export arm of the Ministry of Fisheries] said.
>
> After the fish were sold, *Sovrybflot* returned about $.40 on the dollar back to the fishing enterprises. The quality of the seafood produced varied widely. Some was good, most was mediocre and a lot was poor. In the long run, as far as the fishermen and processing workers were concerned, it really didn't make any difference. Orders were orders.

14 GLOBEFISH, *The Fishery Industry During the Transition of the Former USSR to CIS*, FAO/GLOBEFISH Research Program, Vol. 24, Rome, FAO, 1993.
15 *Bill Atkinson's News Report*, May 19, 1993.
16 Peter Redmayne, "Russia's Wild East." *Seafood Leader*, July/August 1993.

Changes in the Russian Fishery Management System

The same *Seafood Leader* article describes the changes brought by *perestroika* and the breakup of the Soviet Union as follows:[17]

> The planned, predictable world of Soviet fishing began to change forever in 1987 when Mikhail Gorbachev opened Pandora's box by ending the MOF monopoly on seafood exports and foreign joint ventures. "It used to be there were one or two doors you could knock on," recalls Tony Allison, who set up a Moscow office for Marine Resources Company Inc. in 1985 and is now the general manager of the company. "It was an incredibly difficult task to get in, but if you got through you had a real deal." Perestroika began to change all that. Slowly but surely, says Allison, there was "a proliferation of entities that were free to travel, make contacts and propose deals."
>
> Even though Gorbachev's 1987 decree permitted foreign joint ventures, it still wasn't that easy to get Moscow's okay to go into the fish business. The people that did get the green light had to have the right contacts. They had to know the system.
>
> When the August 1991 coup against Gorbachev failed, leading to the demise of the Soviet Union, it meant the dawn of a new era in the Russian Far East.
>
> "Immediately after the coup, the regions became more autonomous. They began allocating fish on their own, and not paying much attention to the Ministry of Fisheries," says Ed Wolf, a former U.S. Fisheries Ambassador who negotiated a number of fishing agreements with the USSR. After the coup, Russian President Boris Yeltsin declared economic reform and privatization in, and all previous bets were off.
>
> In the West, selling off the assets of a big, government-owned company is a time-consuming, tedious business. In Russia, a country with no legal precedents, entire industries have been privatized in just a few months. It was literally every man for himself. Overnight, communists became capitalists with bank accounts. Not surprisingly, the people who ended up with most of the assets under the new system, were often the people in charge of the old system.
>
> Adding to the chaos was the fact that Yeltsin reorganized the government and took the once almighty Ministry of Fisheries and put it under the control of the Ministry of Agriculture, a lumbering, inefficient bureaucracy that had other priorities.
>
> At the heart of the chaos that surrounds the Russian fishing industry is the struggle for quotas. Under the old system, fish quotas were doled out by MOF to a small number of regional fishing organizations by a limited number of bureaucrats. There were regional squabbles, of course, but by and large, things didn't change much from year to year.

17 Peter Redmayne, "Russia's Wild East." *Seafood Leader*, July/August 1993.

> When the old system collapsed in 1991, everyone started wheeling and dealing. Those organizations that ended up with a quota no longer had to go out and fish the quota themselves. If they wanted, they could sell the quota to someone else and take the money and run. Or they could cut a deal with a foreign partner to fish the quota, perhaps creating a new joint venture company to sell the fish. The possibilities were limitless. The key was to get the quota from the bureaucrats in Moscow. And the bureaucrats, of course, could be bribed...

In 1992, Peter Christiansen described the ongoing dispute over the placement of the Ministry of Fisheries under the Ministry of Agriculture:[18]

> There is an old Russian proverb: "A fish begins to rot at the head." Events in the Russian Far East fishery indicate that this proverb may be more timely now than ever. Bureaucratic turmoil in the Russian Republic's Ministry of Fisheries, combined with the economic chaos and political difficulties that beset Russia, poses a serious challenge to foreign investment in the Russian Far East.
>
> The rot in the Ministry of Fisheries is an unforeseen consequence of the failed August 1991 anti-reform coup in the Soviet Union. Flushed with success following the collapse of the Soviet system, the Yeltsin administration reorganized most government ministries. The Ministry of Fisheries, one of the largest, most prestigious and successful branches of Soviet industry, was subsumed into the Ministry of Agriculture. While the reorganization brought the Russian administrative system closer to Western models, which generally fit fisheries into a department of agriculture or commerce, the new order displeased the Ministry of Fisheries. Officials there resented being suddenly made subordinates of the Ministry of Agriculture, with its record of disappointing production, chronic shortages and inefficiency. Now, lingering bitterness over the move is erupting into all-out bureaucratic war.
>
> At stake is control over a yearly harvest totaling 3 million tons of commercially valuable fish — pollock, sole, cod, halibut, salmon, and king and snow crab— worth billions of dollars on the international market. Resources are one side of the coin; the flip side is assets. The entire Russian Far East fishing fleet, one of the largest in the world, including all the tenders, tankers and tugs needed to support it, is now at the disposal of the Ministry of Agriculture. Like all former industrial behemoths in the Soviet Union, the Ministry of Fisheries created everything needed to keep its workers sheltered, fed, clothed and cared for from cradle to proletarian grave...
>
> The conflict between Fisheries and Agriculture heated up again when the Russian government passed a resolution ordering Fisheries to move into Agriculture's headquarters in Moscow. An article ... published in the fishing trade journal Soviet Fisherman ... levels accusations of bribe-taking and corruption at both the Moscow city and Russian federal government.
>
> An executive in the Kamchatka Regional Administration Fishery Department . . . noted that the Ministry of Fisheries has taken action to become independent from the Ministry of Agriculture, and that he expects Fisheries

18 Peter H. Christiansen, "Something's Rotten in Russia," *Seafood Business*, November/December 1992.

to accomplish this sometime "in the near future." He hopes to replace control from Moscow with a regional fisheries management council for the Russian Far East. "We are cooperating with Ministry of Fisheries representatives from Vladivostok, Sakhalin Island, and around the Sea of Okhotsk. The goal is to coordinate fishery resource use in the Russian Far East."

American fishing company representatives aren't so sure this will work. "People [in the Russian Far East] have been talking about getting free of Moscow for five years now," said one Seattle fishing company representative with extensive experience in the Russian Far East. "It's just not going to happen unless Moscow wants it to."

In March of 1993, Terry Johnson also described the chaos over control of the fisheries:[19]

> Control of allocations for Russian fisheries, and to an extent, product distribution and pricing, still remains in bureaucratic hands, which can make it very difficult for foreigners looking to trade or invest. The make-up of the fisheries bureaucracy from the Ministry of Fisheries (now part of the Ministry of Agriculture) down to the regional cooperative associations has changed in recent months, and will probably continue to evolve for some time. Much in dispute is who has the right to make allocative decisions, to issue quotas, and so on. It may be more than a generation before the industry is freed of bureaucratic controls.

Fisheries Committee

Under Yeltsin, the Ministry of Fisheries was reorganized to form the Fisheries Committee (officially, the Committee of Fisheries of the Russian Republic) in early October, 1992. While the group has initially lost its "ministry" status, it is expected to eventually regain ministry level status.[20] According to Alexander Pilyasov:

> We have the so-called "Committee of Fisheries" in Moscow in the Ministry of Agriculture. There are long discussions about how to reorganize this committee into a Ministry. Many people think this would increase the status of fishing if this committee were transformed into an independent Ministry.

TINRO

The Pacific Research Institute of Fisheries and Oceanography, known as TINRO, is the major fisheries research unit in the Russian Far East, with responsibilities roughly analogous to the research responsibilities of the National Marine Fisheries Service in the United States. TINRO is responsible both for basic scientific research on fisheries resources as well as developing quota recommendations. TINRO has regional branches located in Magadan, Khabarovsk, Kamchatka and Sakhalin.[21] TINRO makes annual salmon run projections (prognozy), sets a total harvest quota (TAC), and makes recommendations on area harvests and allocations.[22]

Russian government funding for scientific research has declined dramatically. There have been reports that TINRO receives some of its funding for research and management by selling quota.[23] However, officials both inside and outside TINRO say that such is not the case.

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19 Terry Johnson, "The Russian Bear Goes Fishing," *Pacific Fishing*, March 1993.
20 *Bill Atkinson's News Report*, May 19, 1993.
21 *Bill Atkinson's News Report*, May 19, 1993.
22 Terry Johnson, notes from an interview with Vladimir Burkanov, Director of *Kamchatrybvod* and a marine mammal biologist with the Kamchatka Institute of Ecology and Nature Management, January 3, 1995, Petropavlovsk, Kamchatka.
23 David Benton, Memorandum to Alaska Delegation for Alaska/Japan Fisheries meeting, June 17, 1993.

Instead, they explain, collectives or firms with an interest in run prediction and other kinds of scientific information underwrite some of TINRO's research, in the way that salmon processors fund the Fisheries Research Institute's work in Bristol Bay and the Port Moller test fishery.

Fisheries Management Agencies

Within the Russian Far East, there are several regional fisheries management agencies. *Kamchatrybvod* has jurisdiction over Kamchatka fisheries. *Okhotskrybvod* has jurisdiction over Khabarovsk, Magadan and Chukotka fisheries. These agencies are under federal jurisdiction (presumably the Committee on Fisheries) as opposed to regional jurisdiction. In other words, they correspond to the National Marine Fisheries Service rather than to the Alaska Department of Fish and Game.

Alexander Pilyasov described the role of *Okhotskrybvod* in Magadan Oblast as follows:

> *Okhotskrybvod* is an organization which regulates and controls the process of harvesting. They communicate with the Magadan branch of TINRO. It is a resource management agency. *Okhotskrybvod* enforces the harvest regulations.

Fishing and Processing Enterprises

Regional Fishing Companies

Under the Soviet system, commercial fishing in the Soviet East was carried out under the auspices of a huge, state fishing company known as *Dalryba*. Other Russian Far East fisheries organizations also fell under the guidance of *Dalryba*. In 1989, *Dalryba* was restructured to form an independent fishing enterprise. Several of the other fisheries groups have also grown into independent fisheries entities.[24] These include *Magadanrybprom* in Magadan, Primorrybprom in Primorskii Krai, and *Kamchatrybprom* in Kamchatka.

The current situation of Dalryba was described by its Director General as follows at the Pacific Rim Fisheries Conference in 1993:[25]

> As a result of denationalization of state property, the majority of fishing enterprises of the region became joint-stock companies of open type and limited companies. Only seven enterprises and organizations which were members of *Dalryba* are still state, but they must be denationalized this year. In February of last year bodies of joint-stock companies, other enterprises, organizations of the Far Eastern region voluntarily created the *Dalryba* Association. It consists of 28 joint-stock companies, three limited companies, four fishing collective farms and five state enterprises of Primorski and Khabarovsk Krais and Sakhalin, Kamchatka and Magadan Oblasts. *Dalryba* enterprises have their own business and financial independence. *Dalryba* has no financial responsibility for results of business activity of its enterprises. And all *Dalryba* enterprises are not responsible for the activity of *Dalryba*. These enterprises gave only part of their rights to *Dalryba*.

24 *Bill Atkinson's News Report*, May 19, 1993.
25 Yury Moskaltsov, Director-General, Dalryba Association, Remarks at the Pacific Rim Fisheries Conference, Beijing, China, 1993.

For example, in Magadan Oblast, the regional fishing enterprise (obideniye) is *Magadanrybprom*. It is state owned. According to Alexander Pilyasov, *Magadanrybprom* owns four major fish processing factories in Magadan Oblast, in the towns of Evensk, Ola, Armen, and in Anadyr (in Chukotka). Pilyasov estimated that Magadanrybprom receives the bulk of fishing quota for Magadan Oblast, with the share of small, private companies being as little as 10 percent (although this share is probably higher for salmon). Magadanrybprom is being restructured into a private enterprise, a process which will take several years. According to Pilyasov,

> As for *Magadanrybprom*, it is very evident that the share of small private businesses will be more in the future—maybe 50 percent or more—because *Magadanrybprom* is facing a great number of problems, and non-capital intensive fishing can be easily transferred to smaller enterprises.

Collective Farms

Under the Soviet system, collective farms were established in both agriculture and fishing (a collective farm is known in Russian as a kolkhoz). These collective farms continue to be involved in both near-shore as well as off-shore fishing. Collective farms are collectively represented in fisheries quota allocation by the Federation of Kolkhoz.

Privatization

Since passage of a law in March 1991 cooperatives and private companies have been able to acquire fishing rights previously reserved for state organizations. There has been a blossoming of private enterprise as new companies formed to take advantage of the opportunity.[26] The Russian fisheries are now in a process of privatization as the nation begins a conversion from a planned to a market economy. State-owned companies and collectives are becoming "joint stock enterprises," which means that their own employees and the Russian public can become shareholders. Companies will be expected to produce a profit or close down.[27]

Terry Johnson described one such private organization as follows:[28]

> Ivan's little company, called "Kalaus," is co-owned by his brother and their mother... Ivan tells me that his operation is profitable, enough so that his crewman who are paid on a share basis don't have to work the rest of the year. Ivan and his partners work, however, running a smoking operation, and selling their products. They don't have an export license so they sell into the local markets or to middlemen who can export. He wants to form a marketing cooperative to try and get better prices for his production, now that what they are paid is agreed upon between buyer and seller rather than determined by decree from Moscow, as before.

Establishment of Harvest Quotas

Harvest quotas are the major management tool for salmon in Russia. Thus, Russian salmon management is analogous to that used for the Alaska False Pass fishery or for the coho and chinook fisheries in southeast Alaska.

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26 Terry Johnson, "Fishing with Ivan: Alaskan looks at the competition," *Kodiak Daily Mirror*, March 15, 1994.
27 Terry Johnson, "The Russian Bear Goes Fishing," *Pacific Fishing*, March 1993.
28 Terry Johnson, "Fishing with Ivan: Alaskan looks at the competition," *Kodiak Daily Mirror*, March 15, 1994.

Each year TINRO carries out evaluations of fisheries resources and makes recommendations to the Fisheries Committees for annual Total Allowable Catches (TACs). Based on these recommendations, the Fisheries Committee sets the TACs for the year.[29]

Alexander Pilyasov described the process for setting quotas as follows:

> Quotas are set by the so-called "Fishing Council" *(Promysloviy Soviet)* in Khabarovsk. Each spring, before the season, they elaborate the quota for each territory and for each river. Representatives of the Scientific Research Institute (TINRO) and *Okhotskrybvod* participate in this process. Several representatives of the Committee on Fisheries participate in the Khabarovsk Council—so Moscow is involved in this process.

The following is a description from a Russian newspaper of the 1994 salmon quota for Kamchatka:[30]

> According to the evaluation and forecast for the fishing season made by the scientists at the Kamchatka branch of the Pacific Research Institute of Fisheries and Oceanography (TINRO), the total amount of Kamchatka *keta* (chum) population in 1994 will be about 3,180,000 fish, of which only 630,000 fish or 2,200 MT are the recommended allowable catch. Based on the scientists' forecast, the catch of pink salmon along the western coast of Kamchatka for 1994 will not exceed 19,200 MT. At the east coast of the Peninsula, the main approach of pink salmon is expected in Karaginsky Bay and Korf Bay, and that catch will not exceed 6,000 MT. The recommended pink catch in the Okhotsk Sea will be 19,200 MT. In 1994, the red salmon permitted catch will be greatly reduced. For example, in the Gulf of Kamchatka, the allowed red catch will be 400 MT or less, and little Chinook salmon will be permitted. However, the silver salmon will be more abundant this year in Kamchatka waters and up to 3,800 MT catch will be permitted.

Allocation of Harvest Quotas

The procedure for allocation of salmon harvest quotas was not entirely clear from our review of the literature. Apparently, it works through a top-down process of distribution of harvest quotas from larger organizations to smaller organizations. Initially, the Fisheries Committee sets total salmon harvest quotas—presumably by area and species—and distributes them in part to *Dalryba*, in part to the *Federation of Kolkhoz*, and in part to regional governments.[31]

In Kamchatka, TINRO makes run projections, determines a total quota, and makes recommendations on area harvests and allocations. The Kamchatka regional government fishery agency accepts applications for quotas. The application period is early in the new year.

The regional government then makes decisions regarding quota allocations in consultation with *Kamchatrybvod* and TINRO. A working group does a preliminary round of allocation decisions between January and March. Membership of the working group includes TINRO, *Kamchatrybvod, Compriroda* (the Committee of Nature Preservation), and the Oblast

29 *Bill Atkinson's News Report*, May 19, 1993.
30 Article from *Kamchatka Fisherman*, January 1, 1994, reprinted in *Pacific Rim Fisheries Update*, Volume 3, Number 12 (March 1994).
31 *Bill Atkinson's News Report*, May 19, 1993.

Administration. Natives and subsistence users get the highest priority for quota, followed by government enterprises, which receive the largest part of the total volume. These are followed by sport fishing, and finally by individual private companies.

In a second phase, one or two representatives of each company which wants quotas, including kolkhozes and fish processing plants—consisting of a total of between 50 and 60 people—meet to argue out priorities for allocation. Representatives of different companies argue for allocations based on how their companies help the Kamchatka economy and people. Priority tends to go to enterprises with a long history in a location. This second step takes two-to-three days, and occurs at about the end of March.

Allocation decisions are somewhat arbitrary, and may be subject to external influence. The situation changes every year. In recent years, both the local government and Moscow have tried to keep control of the resource, resulting in groups not knowing for certain how much quota they have up to the start of the season. Sometimes the same quota is given by the local government to one company, and by Moscow to another.

When quotas are assigned, *Kamchatrybvod* issues fishing permits. Anyone can buy a boat and nets, but they are useless without a quota. Anyone can apply for and receive quota—there is no limited entry system—but all quota comes from the same TAC. If a company has a quota, it can be licensed for however many sites or nets as it wishes to use, within its quota. It can add sites, but the catch comes from the quota. A company can be made to remove nets if it appears that the quota will be exceeded. *Kamchatrybvod* can reduce or increase allowable catches in-season if it appears overallocation occurred or if run strength appears very different from projections.[32]

In Magadan Oblast, according to Pilyasov,

> At least three organizations are involved in the allocation of quota. These include the Oblast Administration, *Okhotskrybvod* (the organization which controls and coordinates this process), and *Magadanrybprom*—because a lot of salmon harvest quotas go to its fish processing factories. I believe that the first quota is established in Khabarovsk by the Fishing Council. They give the right to the Oblast Administration and *Okhotskrybvod* to discuss in detail who has the harvest right. A small business gets quota through the Oblast administration and *Okhotskrybvod*. There are usually tensions between these two management bodies in their priority. In the Oblast Administration there are special people who are responsible for coordination in determining the exact quotas for each piece of river for each enterprise. Of course, the Oblast authorities are eager to receive full regulatory power. It seems to me that in the future they will receive these rights. It is the general trend for the Oblasts to receive more authority. It seems to me that the trend will be towards sharing power between the Oblast authorities and *Okhotskrybvod*.

In his description of a private salmon harvesting and processing operation on the Vahil river in Kamchatka, Terry Johnson reported that the operation "and one other on the river split a season quota of 85 metric tons (finished product)."[33] In another article, he described a collective farm with a salmon quota in the Ozernaya River:[34]

32 The description of the quota allocation process in the above five paragraphs is based on Terry Johnson's notes from interviews with Dr. Vladimir Burkanov, Director of *Kamchatrybvod*, January 3, 1995; and with Dr. Boris Vronsky, Deputy Director, Kamchatniro (the *Kamchatka* branch of TINRO), January 4, 1995.

33 Terry Johnson, "Fishing with Ivan: Alaskan looks at the Competition," *Kodiak Daily Mirror*, March 15, 1994.

34 Terry Johnson, "The Russian Bear Goes Fishing," *Pacific Fishing*, March 1993.

> These are crewmen of the *gospromhoz* or fishing collective farm of Ozernaya, a town of 5,000 on the Sea of Okhotsk coast of Kamchatka. They are among only a few dozen on the coast who are allowed to harvest the foremost sockeye salmon fishery in Russia . . . Only this collective and one other have rights to fish in the Ozernaya River and their quota is assured well before the start of the season.

Enforcement of Harvest Regulations

Salmon management on paper may be different from that which is actually enforced. There have been numerous reports of problems with fisheries enforcement in the Russian Far East. Many of these problems relate to enforcement of fishing quotas for foreign vessels. It is uncertain whether similar problems also exist for near-shore and in-river salmon fisheries.

According to Christiansen,

> The other main issue here is sustainability and protection of the resource base. It seems to me that Russia's inability to regulate fishing efforts in its EEZ pose the biggest threat to sustaining the catch efforts of the past few years. The Fish and Game Inspectorate has 'observers' on most Japanese salmon boats, but they are poorly paid and frequently bribed to ignore 'high-grading' (such as discarding a target fish such as *O. keta* and keeping only *O. nerka*) or violations of catch limits. They often work alone on Japanese boats, with little oversight. Chronic fuel shortages have greatly limited the Russian Coast Guard's efforts to check vessels operating for violations, or to pursue poachers operating on the fringes of the Russian EEZ. Many Russian fishing boat crew catch and process salmon illegally and then sell it on the Japanese market during port calls. This activity has become so common the Russian Ministry of Internal Affairs has started placing agents on boats calling on Japanese ports.[35]

> Regulation of resource use is yet another serious problem in the Russian Far East. The Russian Coast Guard has neither the available manpower, ships, helicopters nor communications to coordinate and enforce fishing rules in territorial waters. Pirate fishing by foreign and domestic vessels is on the rise, and the local governments are hard-pressed to stop it.[36]

However, there clearly is some enforcement of salmon harvest regulations. According to the director of *Kamchatrybvod*, *Kamchatrybvod* has inspectors all along the coast, and the penalties for illegal fishing are sufficiently severe to be an effective deterrent.[37] According to Alexander Pilyasov, "*Okhotskrybvod* has patrol equipment—although sometimes it is not so beautiful as the equipment of the violators of the law." The owner of a small private fishing company with operations on and near the Vahil River told Terry Johnson that his operations were inspected 33 times during the 1994 season by inspectors of *Kamchatrybvod*, TINRO, and various other agencies.

35 Peter H. Christiansen, Letter to Dr. Evelyn Pinkerton, November 2, 1993.
36 Peter H. Christiansen, "Something's Rotten in Russia," *Seafood Business*, November/December 1992.
37 Terry Johnson, notes from interviews with Dr. Vladimir Burkanov, Director of *Kamchatrybvod*, January 3, 1995.

IV. JAPANESE HARVESTS OF RUSSIAN SALMON

Japanese Harvests Outside the Russian Exclusive Economic Zone

During the 1970s and earlier, Japanese and other vessels harvested large numbers of salmon on the high seas. Most of the Japanese high-seas salmon catch in international waters consisted of Asian-origin fish which spawned in Russian rivers.

Beginning in 1977, Japan negotiated an annual catch quota with the USSR for harvests in international waters of salmon of Russian origin.[38] The bilateral agreement required Japan to pay access fees in terms of goods for the enhancement of the Russian salmon industry (research instruments, navigational equipment, construction equipment for juvenile salmon rearing ponds, formula feed manufacturing plants, and salmon hatcheries). Allocation of the quota was granted by area, species, type of operation, type of fishing gear (drift nets or long-lines), and the size of the fleet. Between 1978 and 1983, the quota was set at 42.5 thousand metric tons, while annual fees rose from the equivalent of $8.3 million to $17.9 million. After 1983, the quota was gradually reduced to 24.5 thousand metric tons in 1986 and 9 thousand metric tons in 1991. Subsequent smaller "high seas" quotas, shown in the table on the following page, are for harvests of Russian salmon by Japanese vessels within the Japanese 200-mile zone.

Japanese Harvests in the Russian Exclusive Economic Zone

The Japanese realized in the late 1980s that their high-seas fishing in international waters was coming to an end, and with it all fishing by their distant water salmon fleets, unless they could negotiate permission to fish for salmon within the Soviet Exclusive Economic Zone (EEZ). They began to negotiate salmon fishing within the Soviet zone in 1988. In return for a guaranteed annual salmon quota, the Japanese salmon fishing industry agreed to invest in salmon hatcheries in the Russian Far East.

Japanese fishing companies have negotiated joint-venture agreements and quota purchases that allow them to fish offshore inside the Russian fisheries zone. The joint ventures involve Japanese investment in salmon hatcheries on Russian soil in exchange for fishing quotas within the Russian fishery zone. In this way, the Japanese companies get prime ocean-run fish and get to process it to their own standards. This new source does not necessarily increase the total salmon supply in Japan, however, since it largely replaces high-seas fisheries on Russian and Alaskan-bred fish that the Japanese have conducted for decades.

Negotiations are first carried out for the total Japanese quota, with subsequent negotiations allocating the Japanese quota among different Japanese firms. As described in the following chapter, Japanese fishing companies have since made major capital investments in hatchery construction in Kamchatka, Sakhalin and Magadan, in joint ventures with Russian partners.

The quota for Japanese harvests in the Soviet (now Russian) zone rose from 2 thousand metric tons in 1988 to 17.3 thousand metric tons in 1992, and declined to 14 thousand metric tons in 1994. The Japanese fleet fishing in the Russian zone in 1992 consisted of 92 vessels fishing in six regions of the Russian zone.

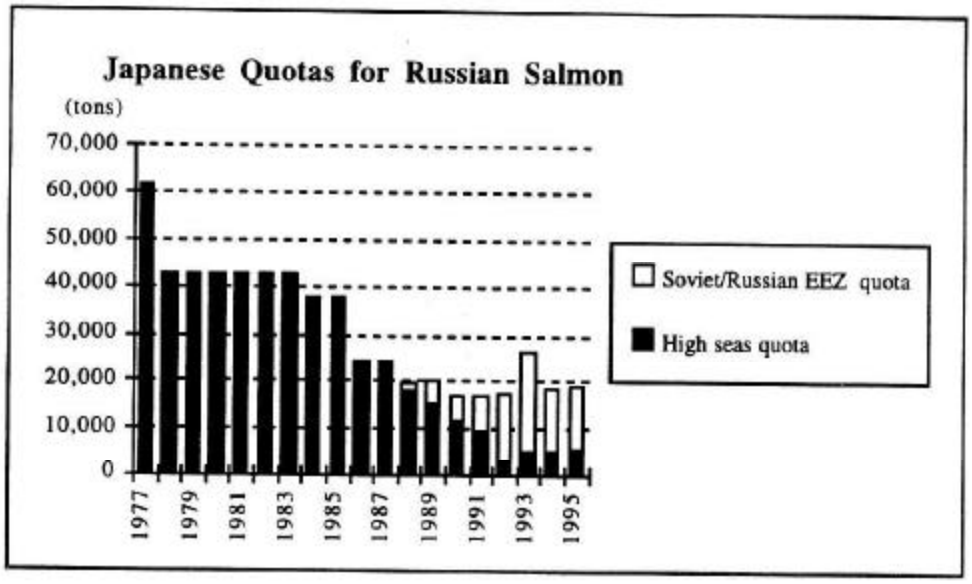
38 Material for this section is from Milan Kravanja, "Russia-Japan Salmon Hatchery Projects," in *Pacific Rim Fisheries Update*. Volume 1, Number 4 (October 1992) Kusakabe and Anderson, The Japanese Seafood Market: Salmon, pages 40-42.

Japanese Allocations and Fees for Russian Salmon

	High Seas Quota (MT)	High Seas Fee (yen/MT)	High Seas Fee ($/lb)	Soviet EEZ Quota (MT)	Soviet EEZ Fee (yen/MT)	Soviet EEZ Fee ($/lb)	Exchange rate (yen/$)
1977	62,000	0					
1978	42,500	41,400					
1979	42,500	76,500					
1980	42,500	88,200	$.18				226.63
1981	42,500	94,100	$.19				220.63
1982	42,500	100,000	$.18				249.06
1983	42,500	100,000	$.19				237.55
1984	37,600	113,000	$.22				237.45
1985	37,600	113,000	$.21				238.47
1986	24,500	142,900	$.39				168.35
1987	24,500	151,000	$.47				144.60
1988	17,668	189,600	$.67	2,000	189,600	$.67	128.17
1989	15,000	223,000	$.73	5,000	223,000	$.73	138.07
1990	11,000	286,000	$.89	6,000	240,000	$.75	145.00
1991	9,000	315,000	$1.06	8,000	na	na	134.51
1992	2,819	157,500	$.56	15,000	na	na	126.78
1993	4,819	157,500	$.64	22,000	na	na	111.08
1994	4,819	157,500	$.70	14,000	na	na	102.18
1995	5,123	na	na	14,000	na	na	

na: not available. Sources: 1977-1984: Kusakabe and Anderson, The Japanese Seafood Market: Salmon, page 41;

1985-1992: Kravanja, Russia-Japan Salmon Hatchery Projects, in Pacific Rim Fisheries Update, Volume 1, Number 4, October 1992; 1992 and 1993: Pacific Rim Fisheries Update, Volume 2, Number 7 (April 1993), page 7; 1994: Bill Atkinson's News Report, 3/16/94; 1994 and 1995: Alaska Office of International Trade, Weekly Fish Report, March 24, 1995 (prepared by Alaska State Office, Tokyo). Exchange rate for Japanese yen: Bureau of the Census, Survey of Current Business.
ISER file: JAPANESE RUSSIAN ALLOCATION.



An illegal fishing incident in 1992 led to difficulties in the 1993 negotiations. The following articles from the Japanese fisheries trade press describe the negotiations over the 1993 quota and the subsequent fishing season.

This year's Japan-Russia Salmon Negotiations are at a stand-still, largely due to differing positions on last year's small class salmon fleet fishing violations. The Russians are not willing to proceed with discussion about the 1993 fishery until last year's illegal fishing situation is cleared up. They feel that all of the 19 ton-class fleet fished illegally, and that Russia should be compensated for the total catch of all 88 vessels in the fleet. The Japanese, on the other hand, have taken the position that those vessels and owners involved in the illegal fishing incident are being appropriately punished and are unable to accept the tonnage figures represented by the Russian delegation.[39]

The Japanese will receive a 15,000 ton allocation within the Russian 200-mile zone for their salmon fleet this year. While this is the same as the initial allocation last year, the Japanese received an additional allocation of 5,780 tons from TINRO in 1992. The Russian delegates advised, however, that a similar additional allocation would probably be available again this year. In addition to the allocation within Russian waters, the Japanese also received an additional 4,819 ton allocation for operations within the Japanese 200-mile zone (1992 level was 2,819 tons). The increase in the allocation within the Japanese zone is largely the result of a convincing argument by Japanese scientists that the far east salmon resource is improving.[40]

The Japanese small-class salmon drift-net fleet is working on final operating details prior to the start of the fishery next month. The total quota is 3,444 tons (pink salmon 3,243 tons, chum 201 tons), with a fishing fee of 157,500 yen/kilo (72 cent/s/lb). The tonnage is being allocated on an individual vessel basis this year rather than using the traditional allocation to the fleet as a whole. A total of 150 to 160 vessels are expected to participate in the fishery this year.[41]

Japan has already received a total allocation of 2,100 tons (commercial quota 1500 tons, TINRO survey quota 6,000 tons for salmon operations within the Russian 200 mile zone this year. One of the Japanese associations receiving the allocation (Zenkeiren) has concluded negotiations for this year's operations, while the second group (Nikkeiren) is still trying to get a better species mix. The Zenkeiren will receive a total allocation of 16,200 tons (14,600 tons commercial, 1,600 tons survey) with the remaining 4,800 tons expected to go to the Nikkeiren. With the soft market for salmon, the fishing fee was reduced to 215,000 yen/ton, 10.7% down from the 241,000 yen/ton (98 cents/lb) last year. In a recent meeting of vessel owners, seven were selected to fish for the survey allocation, with the remaining 53 vessels fishing under the commercial allocation. The authorized fishing season is May 5 to June 25.[42]

The following articles from the Japanese trade press describe negotiations over the 1994 Japanese salmon allocations and the 1994 fishing season:

Japan and Russia have reached an agreement on this year's Japanese fishery for Russian salmon. The Japanese salmon fleet has received an allocation of

39 *Bill Atkinson's News Report*, March 17, 1993.
40 *Bill Atkinson's News Report*, March 24, 1993.
41 *Bill Atkinson's News Report*, April 28, 1993.
42 *Bill Atkinson's News Report*, April 28, 1993.

14,000 tons of salmon within the Russian 200-mile zone. In exchange for the allocation, the Japanese will pay 759 million yen ($7.16 million) to Russia. A major focus of this year's negotiations was on the resource assessment. Both Japan and Russia were able to agree on the pink salmon resource. There was considerable disagreement, however, over the resource levels of both chum and sockeye salmon. Whereas the Japanese data indicated a resource level roughly the same as last year, the Russians felt that the resource for these species was 20 to 25 percent less than last year. Both sides were able to reach an agreement, with the catch allocation for harvests within the Japanese zone set at the same level as last year (4,819 tons). The Russians did agree to increase the tonnage of higher priced chum by 200 tons, though, reducing the allocation of pink salmon by a similar amount. For operations within the Russian 200-mile zone, the Russians originally proposed an allocation of 9,000 tons. This was countered by a Japanese proposal of 15,000 tons, the same as last year. Eventually, the Russians agreed to provide a total of 14,000 tons to the Japanese. The actual terms and conditions of this fishery are to be determined during later industry-to-industry negotiations.[43]

The Japanese domestic salmon federations recently reached an agreement with the Russian Fisheries Committee over this year's catch allocations for the Japanese salmon fleet this year. An additional 3,300 tons—commercial quota 1,000 tons, survey quota 2,300 tons—was added to the 14,000 ton quota previously agreed in government-level negotiations. In exchange for the allocation, the Japanese will pay Russia 239 yen/kilo, about 11 percent higher than the 215 yen/kilo fishing fee paid last year.[44]

43 *Bill Atkinson's News Report*, March 16, 1994.
44 *Bill Atkinson's News Report*, May 4, 1994.

V. RUSSIAN SALMON HATCHERIES

In recent years, there has been substantial investment in salmon hatcheries in the Russian Far East. This chapter quotes articles from Russian, American, and Japanese sources which describe details of various hatchery operations and investments. However, it is difficult to get a clear picture from these accounts of the actual contribution of hatcheries to total Russian salmon harvests, or the extent to which hatcheries may lead to increased future harvests.

Russian Hatchery Production Data

The data on the following page, which were provided to the North Pacific Anadromous Fish Commission by the Pacific Research Institute of Fisheries and Oceanography (TINRO), provide a general indication of the scale of Russian salmon hatchery production. The data show both total numbers for "enhanced production" by species, as well as total numbers of "fed fry." Although these are evidently data for fry production or releases, documentation was not provided as to the precise definition of each term.

The data indicate that Sakhalin accounts for most Russian Far East salmon hatchery production. Almost all hatchery production is of pink and chum salmon. Hatchery production is about the same scale for pinks and chums. Total Russian "enhanced production" of pinks in 1993 was about one-third of estimated releases of pinks from Alaska hatcheries. Total Russian "enhanced production" of chums in 1993 was about one-half of estimated releases of chums from Alaska hatcheries.

Press Accounts

In 1992, the Alaska Center for International Business described Russian salmon hatcheries as follows:[45]

> There are 24 salmon hatcheries operating in the Far East with a few more under construction. Almost all the hatcheries are producing chums and pinks. However, there are hatcheries producing sockeye and coho on the Kamchatka Peninsula. Half of the Russian Far East Hatcheries are located on the river system of Sakhalin Island. The rest are located in the regions of Khabarovsk, Kamchatka, and the Kuril Islands.

Japanese fishing companies have agreed to invest in salmon hatcheries in the Russian Far East in return the right to harvest salmon in Russian waters. A 1993 article in a Japan Fisheries Association Newsletter described the hatchery program as follows:

> The National Federation of Salmon Drift-net Fishery Cooperatives *(Zenkeiren)* has become deeply involved in fisheries development with fishermen in the Russian Far East. Two joint ventures companies in Sakhalin and Kamchatka have constructed four salmon hatcheries with an estimated total annual production of 90 million fish (smolt released).
>
> The *Zenkeiren* membership includes 87 local Japanese salmon drift-net fishery cooperatives located in Hokkaido and the northern part of Honshu.

45 Shawneen Conover, "Russian Salmon Outlook," Pacific Rim Fisheries Update, June 1992.

Russian Far East Enhanced Pacific Salmon Production, by Species and Area, 1993 (thousands of fish)

Species	Kamchatka	Sakhalin	Magadan	Khabarovsk	Primore	Total
All "Enhanced Production"						
Pink	-	282,400	7,000	-	-	289,400
Chum	3,512	183,100	8,200	35,044	22,804	252,660
Sockeye	1,382	-	500	-	-	1,882
Coho	744	100	700	-	-	1,544
Chinook	199	-	-	-	-	199
Total	5,837	465,600	16,400	35,044	22,804	545,685
"Fed Fry" Only						
Pink	no data	125,000	-	-	-	125,000
Chum	no data	183,100	8,200	31,504	19,124	241,928
Sockeye	no data	-	500	-	-	500
Coho	no data	no data	700	-	-	700
Chinook	no data	-	-	-	-	-
Total	0	308,100	9,400	31,504	19,124	368,128

Source: Statistics of Russian Catches of Pacific Salmon 1993. (NPAFC Doc. 103), Pacific Research Institute of Fisheries and Oceanography (TINRO) 1994. ISER file: Hatchery prod, 1993.

Comparison of Russian Far East and Alaska Hatchery Production, 1993 (thousands of fish)

	Pink	Chum	Sockeye	Coho	Chinook
Russian Far East, All "Enhanced Production"	289,400	252,660	1,882	1,544	199
Russian Far East, "Fed Fry" Only	125,000	241,928	500	700	
Alaska, Estimated Releases from Hatcheries	919,680	460,120	57,680	14,620	11,220

Source: Statistics of Russian Catches of Pacific Salmon 1993. (NPAFC Doc. 103), Pacific Research Institute of Fisheries and Oceanography (TINRO) 1994; Marianne McNair and J.S. Holland, "Alaska Fisheries Enhancement Program 1993 Annual Report," Alaska Department of Fish and Game, Commercial Fisheries Management and Development Division, 1994. ISER file: Hatchery prod, 1993.

Fishermen belonging to the local cooperatives traditionally engaged in a high seas land-based drift-net fishery for salmon of Asian origin under agreement with the former Soviet Union. High seas salmon allocations to Japan were negotiated annually under the agreement until 1991. A new convention signed last year among Canada, the Russian Federation, the United States and Japan bans salmon fishing beyond the 200-mile exclusive economic zones of the four nations.

As the Japan/Soviet negotiations began to phase out the Japanese high seas salmon allocations, the negotiations yielded a 2,000 mt allocation to Japan within the Soviet 200-mile zone for the first time in 1988. This allocation was increased to 5,000 mt in 1989; 6,000 mt in 1990; 8,000 mt in 1991; and 15,000 mt in 1992. In return for these allocations to Japan, *Zenkeiren* established its first joint venture company, *Pilenga Godo*, with the Russians in 1988. *Pilenga Godo* constructed its first salmon hatchery in 1989 on the Pilenga River in northern Sakhalin. A second hatchery and a third hatchery were constructed in Sakhalin in 1990 and 1992 at Monetka and Zalom.

Zenkeiren established its second joint venture company, *Kamchatka Pilenga Godo*, in 1990. The company's first hatchery was just completed this last year in Plotnika, located in southern Kamchatka. This is one of the most modern hatcheries in the world.

The Russian joint venture investments are not expected to produce returns for several more years. *Zenkeiren* has invested in these joint ventures with the long term in mind. Salmon is one of the most popular food products with Japanese consumers. Zenkeiren has worked hard to develop the Japanese market for its members' products and is seeking to maintain that market through investments and the development of new business opportunities.[46]

Peter Christiansen summarized the hatchery program as follows:[47]

In the past two years, the Japanese-Russian joint venture company Pilengo-godo built three salmon hatcheries on Sakhalin and two on Kamchatka. The Kamchatka Regional Administration has approved, along with the Ministry of Fisheries, a plan to construct one hatchery per year on Kamchatka for ten years with Pilengo-godo's local filial, Kamchatka-Pilengo-godo. The entire plan is estimated to cost $110 million US dollars, and will be funded by allocating the Japanese between 5-7 thousand tons of salmon quota for each hatchery. The plan calls for the Japanese to catch, process, and sell the salmon in Japan in return for planning, constructing, and outfitting the hatcheries. The hatcheries will mostly produce *O. keta* (chum salmon) with some *O. nerka* (sockeye salmon). I have been attending the planning sessions for the hatcheries, and although there are some problems with it, I would say the hatcheries will be built. This will further strengthen Russian salmon's position in Japan.

46 Japan Fisheries Association, "Salmon is focus of Japanese/Russian Cooperative Development," *Isaribi* (a Japan Fisheries Association English language newsletter), April 1993.

47 Peter H. Christiansen, Letter to Dr. Evelyn Pinkerton, November 2, 1993.

According to a 1994 article in the Japanese press, the newly-appointed governor of Sakhalin, Evgeniy A. Krasnoyarov, had "served as the president of the Japan-Russian salmon joint venture company (Pilenga Godo) since 1988. The Pilenga Joint Venture operates three salmon hatcheries and one salmon processing plant. Unlike most of the other Japan-Russian joint venture operations, which are mostly operating at a loss, the Pilenga venture is operating smoothly."[48]

A variety of Russian press accounts describe operations at individual Russian hatcheries. The following are examples:

> An official opening of the new Russian-Japanese Fish Farm, Ozierky, was held October 8, 1992. The farm is located at the mouth of the Plotnikov River, in Kamchatka. The farm was constructed in four months and is capable of raising 20 million eggs. The investor is Kamchatka-Pilenga Godo, a Russian-Japanese joint venture.[49]

> A strong run of pink salmon are now entering the rivers of the Khasan Region south of Vladivostok. A fish farm of Primorrybprom Production Association is concentrating on increasing the amount of pink salmon in this area. Eight million eggs have been raised this year with an additional one million by the end of this year. ... The fish farm is looking forward to experiments with other species of fish.[50]

> Recently, the Chief of *Sakhalinrybvod* Fish Farm (Sakhalin Fish Control and Fish Farming Organization) ... reviewed the 1993 progress report for the fish farm. According to Mrs. Romanchuk, the Sakhalin fish farmers as well as its fishermen were expecting a large salmon catch in 1993. Because the TINRO forecasts were only 25 percent accurate, it created problems for not only fishermen, but also fish farmers, leaving the amount of eggs available for incubation nowhere near the amount needed to reach projected future returns. The most critical situation occurred on Ochepukha River, at Lesnoy fish farm. As to the final results of 1993, the salmon eggs for incubation for the year were 243 million pink salmon, 155 million keta (chum) salmon and 1.5 million other salmon (silver and cherry). Recently, several fish farms such as Okhotskiy, Lesnoy and Ado-Tymovskiy are being renovated and modernized. Anivskey and Buiuklovskiy fish farm will be also renovated in 1994.[51]

Alexander Pilyasov described hatcheries in Magadan Oblast as follows:

> In Magadan we have three or four hatcheries, for pink and chum salmon. Earlier all of them were operated by *Okhotskrybvod*. Now some are independent. There is one joint venture with the Japanese, *Magadanreien*, which was built using Japanese technology. It was the first private hatchery. The problem is how to privatize state-owned hatcheries. The financing (of

48 *Bill Atkinson's News Report*, April 14, 1994.
49 *Pacific Rim Fisheries Update*, December 1992.
50 *Pacific Rim Fisheries Update*, December 1992.
51 Article from *Sakhalin Fisherman*, February 4, 1994, reprinted in *Pacific Rim Fisheries Update*, Volume 3, Number 12 (March 1994).

private hatcheries) is still through *Okhotskrybvod*. In my recent visit to *Magadanreien*, the manager said they were very interested in the Alaska experience of privatization of state-owned hatcheries. They are just at the very beginning of the process of privatization. Even this joint venture is not entirely private now. The issue is how hatcheries should receive rights for the harvest of quota. Sometimes they prefer to use a huge organization like *Magadanrybprom* to receive quota—to give quota under this umbrella. It's easier than being independent. The large organization then transfers part of its quota to the hatchery.

Salmon Farming

Some translations of Japanese and Russian press articles refer to "salmon farming" operations in the Russian Far East. However, these are actually salmon ranching operations similar to those in Alaska and Japan. There are no pen-reared salmon farming operations in the Russian Far East.

VI. RUSSIAN SALMON HARVESTING

As with marketing and management, Russian fishery technology appears to be in a state of transition. Under the state enterprise and kolkhoz system salmon fisheries were conducted with inexpensive, low-tech equipment. Because there was little or no competition among fishermen—the catch having been allocated by quota—there was no need for the speed, power, size, and electronics technology which characterize salmon fishing vessels in countries like the U.S. and Canada having competitive fisheries. Most Russian salmon fishing is conducted in "terminal" harvest areas so there has been no need to pursue and locate fish over large expanses of sea. It remains to be seen whether the political and economic transitions in the fisheries will result in a "modernization" of the Russian salmon fleet.

Russian inshore fisheries are often characterized as "primitive" although they are based on two very efficient forms of capture—the floating trap and the beach seine. Properly deployed, both types are very capital- and energy-efficient, and both produce superior quality salmon. Indeed, fish from both gear types often arrive still flopping at the processor.

Floating Traps

Observations in Kamchatka indicate that the floating trap (sometimes referred to in translations as a "setnet") is used largely to catch pink salmon in volume, although, of course, traps catch all salmon species, and can be modified to take herring, capelin, and other species as well. Like Alaska salmon traps, but unlike most Japanese traps, the Kamchatka traps use a heavy mesh lead which extends out from the beach. The corkline may be comprised of 4" or larger steel cable, the shoreward end of which is shackled to a bolt set in concrete. The lead may be a quarter mile or longer, running perpendicular to the shoreline, and terminating in the heart or body of the trap. The heart is also of heavy mesh, suspended from large floats, and anchored in place with a system of heavy anchors and cables.

Unlike the traps formerly used in Alaska, the observed Kamchatka traps do not have platforms or shacks for watchmen. Small tender vessels are usually moored at the end of the trap, obviating the need for a watchman's shack.

Traps are placed along the migration path of salmon headed for nearby streams. Judging by the lineup of seals on one side of the lead, the fish seem to approach from one direction primarily. When they encounter the fence-like lead, salmon track down it to the heart, where they wander in, become confused, and remain until the trap is emptied.

Small (10 m) engineless steel vessels *(zhivorybytsa)*, are used as trap tenders. They contain buoyancy compartments at each end and have a center section designed to be flooded, with a gate on the port side. The design is such that when the trap heart is opened and the bottom is raised by pulling on the correct lines, the fish are forced to the surface and swim out of the trap and through the gate into the tender. The tenders sit at the traps until filled (15-20 tons) and are then towed in by small (13 m) steel tugs. The fish literally swim to the processing plant, where they are sucked out of the tenders by an electrically-powered wet pump.

Processed fish and other products are also transported by a class of larger, unpowered barges called *plashkote*. These vessels are usually towed by tugs. They consist of a boat-like hull of around 20-30 m with a small wheelhouse aft where a crewmember can control a steering rudder, presumably to counteract the fishtailing effect while under tow.

Beach Seines

The beach seine is used for taking all species, but particularly higher-value sockeye and coho salmon inside the rivers. Terry Johnson described a beach seine operation on a small river in Kamchatka:[52]

> We headed upriver to seine. We had one 50 fathom beach seine and two skiffs. The fishermen knew, by the stage of the tide and the movement of the fish, that we wouldn't find anything in the lower part of the river, so we headed upstream about five miles. Once we got past the intertidal zone the river became clear, shallow, and fairly swift... Eventually we found the spot—a long, straight drift with a cutbank on one side and a shallow gravel bar on the other. The crew set out from the gravel, two guys holding the end of the net on the beach, and two in the skiff. One runs the motor in reverse and the other pays the net out over the bow. The current swings the skiff in a big arc, and when the last of the net is out and blocking most of the width of the river, the skiff powers back towards the beach and grounds about 50 yards downriver. As soon as the boat grounds, the whole crew starts pulling the net in, and soon the bunt is swirling with fish. In ten minutes the whole net is dried up and a hundred coho and chums are flopping on the gravel. Two sets and the carrying skiff is loaded to capacity and we head back downriver. The whole expedition has taken about three hours.

In another article, Terry Johnson described salmon fishing at a *gospromhoz* or collective farm:[53]

> The crew members start arriving at the camp shack about mid-morning on a sunny late-August day, just after the start of the flood tide. They wear bright orange rain gear over wool trousers and jackets, and black rubber hip boots folded down. They smoke and talk and laugh, maybe 20 in all, until the captain—more like production foreman in this case—gives the word. At that point, two skiffs, one powered by a 30-horse outboard towing another which is unpowered and carrying a large net, motor away from the beach and upriver a half-mile against the current.
>
> These are crewmen of the *gospromhoz* or fishing collective farm of Ozernaya, a town of 5,000 on the Sea of Okhotsk coast of Kamchatka. They are among only a few dozen on the coast who are allowed to harvest the foremost sockeye salmon fishery in Russia, a fishery that takes place within a few blocks of Ozernaya's town center...
>
> Igor Diemidov has brought me down to the river bank this morning to watch some late-season fishing. The run is nearly over; Igor says his crew will catch only 10 tons of sockeye today. During the peak they will take 30 to 40 tons of reds and pinks a day for several weeks. Only his collective and one other have rights to fish in the Ozernaya River and their quota is assured well before the start of the season. His men also operate some of the "setnets" (traps) which are set perpendicular to the ocean beach for several miles in either direction from the river mouth.

52 Terry Johnson, "Fishing with Ivan: Alaskan looks at the Competition," *Kodiak Daily Mirror*, March 15, 1994.
53 Terry Johnson, "The Russian Bear Goes Fishing," *Pacific Fishing*, March 1993.

"My fishermen make four times as much per year as I do," Igor tells me, "and they are some of the best-paid workers in Russia." During the season they earn shares equal to $200 to $500 per month, and salmon isn't their only enterprise. During the spring and again in the fall they operate a fleet of rusty 70-foot steel bottomfishing boats using gear we would call Danish or Scottish seines, and also fish king crab with pots. In the winter they trap. Between seasons, they hunt brown bears for their hides and gall bladders, guide sportsmen, and pick mushrooms and berries.

I watch as two men climb from the net skiff and wade ashore with the spreader bar at the end of the net. As they plant the pointed end of the spreader in the beach gravel, the skiffs head out across the river in a big arc, paying out the net as they go. Just as it appears they will go aground on the far side, they point the skiffs downriver and make a big sweep. After some minutes the skiffs return to their starting point, leaving a big semicircle of net across the river behind them. The narrow flat-bottom skiffs look like plywood but are actually made of welded steel.

With the net skiffs beached, the two men walk the spreader bar down the beach to join the others. The rest of the crewmen have waded in and grabbed the lines of the beach seine and are drying up the net. When two-thirds of the net is out of the water a school of gleaming sockeye is visible, struggling against the web, being driven into the bunt of the net. A six-wheel-drive cargo truck is driven into the water and strapping lines are attached to its bumper so that it can drag the load to shallower water...

Terry Johnson's notes describe another small private harvesting and processing enterprise which he visited during the summer of 1993 in Kamchatka:

Ivan's little company, called "Kalaus," is co-owned by his brother and their mother. The small fishing camp was on the river bank just inside the mouth of the Buihil river, which was separated from the open sea by a wall of breakers. The fish camp looked a lot like fish camps throughout Western Alaska. There was one crude bunkhouse cabin, a dugout bunking area covered with a canvas top, a smokehouse, a storage shed, a saltfish storage shed, an egg-processing shed, a covered but open-air cooking and eating area, and a derelict fiberglass covered lifeboat used as a crew bunkhouse. . . The distinctive focal point of the camp was a large wooden fish-holding bin and cleaning station, set on legs over a small tributary creek. A water hose snaked down to the station from some point higher up the creek to provide pressurized water for washing the fish. Guts would drop through slots in the table and the current would wash them down a few yards to a waiting flock of seagulls.

The camp is there to catch and process salmon from the Buihil River. Earlier there were kings and sockeye, then pinks, and now the focus is chums and coho. The operation has been pretty successful so far, and when I look into the saltfish storage shed I see a large dug out area, lined with visqueen, and filled with tons of headed and gutted and dry salted salmon, stacked neatly head to toe, side by side. In the adjacent egg house is a 3-foot square wooden frame strung with twine like a tennis racket, which is used to separate the eggs from the skeins. There are stacks of gallon jars of

separated and salted eggs ("ikra" in Russian, "ikura" in Japanese) which constitute the other product of the operation.

We anchor the tender in front of the camp and are ferried ashore, along with groceries and supplies, in three 15-foot riveted aluminum skiffs. Two cylinder, 30 h.p. outboard motors power the skiffs.

... The crew at the camp returned from a seining trip with a half-ton of salmon, which were carted to up to the cleaning station a couple of hundred pounds at a time in a tray with handles carried by two people, in the fashion of hod carriers. The crew cleaned fish until after dark, under a naked bulb powered by a single cylinder diesel generator.

I asked Ivan what he needed for his fishing business that he wasn't able to get, and he said VHF radios, or maybe a single sideband. He would like to be able to get messages back and forth between his camp and town.

Gillnets

Gillnets are also used in the Russian salmon fisheries, although not to the extent that they are in Alaska, where they produce more tonnage than any other gear type. Most Russian gillnets are short setnets (gillnets set perpendicular to the shore or flow of the current and anchored on both ends to hold the net in one place) and are usually deployed inside rivers. Drift gillnets are reportedly used in some areas, such as the Amur River, but not to the extent that they are in the U.S. and Canada.

An unusual form of a gillnet is a device consisting of maybe 10 m of gillnet web lashed to a pole of the same length, which is walked downstream through pools of rivers by fishermen who wade or walk down the bank. Commonly seen in Kamchatka, they are reportedly used only by poachers, who supply their own larders and provide some of the fresh salmon found in street markets.

Seiners

Purse seiners are also reportedly used in some areas, but we have not confirmed that. Large numbers of steel fishing vessels of about 70-foot overall length, identified as *sverinpodniva* or "seiners," are found on the Russian coast, but they are designed for bottom seining, not for purse seining salmon.

The seiners, like nearly all fishing vessels observed in Russia, are locally built of steel, powered and outfitted mainly by Russian-built machinery and equipment, and are well found and of adequate scantlings for the rugged conditions under which they work if they receive adequate maintenance.

Gear Units

The data on the following page, which were provided to the North Pacific Anadromous Fish Commission by the Pacific Research Institute of Fisheries and Oceanography (TINRO), provide information on salmon gear units fished in the Russian Far East. The data distinguish between "Set (Beach) Seine" units *(stavnye nevoda)* and "River Seine" units *(zakidnye zavoda)*. Although we are not completely certain, we think it likely that "Set (Beach) Seine" refers to what we have described above as "floating traps" and "River Seine" refers to what we have described above as "beach seines."

Number of Salmon Gear Units, by Region and District, 1993

Region & district	"Set (Beach) Seine"	"River Seine"	Total
1. Kamchatka	**124**	**28**	**152**
1.1 Western coast	18	16	34
1.2 Eastern coast	106	12	118
1.2.1 Bering Sea	101	4	105
1.2.2 Pacific Ocean	5	8	13
2. Sakhalin	**163**		**163**
2.1 Western coast	9*		9
2.2 Eastern coast	100		100
2.2.1 Aniva Bay	19		19
2.2.2 Southeast	41		41
2.2.3 Terpeniya Bay	23		23
2.2.4 Northeast	17		17
2.3 Southern Kuril	54		54
3. Magadan	**18**	**202**	**220**
3.1 North Okhotsk Sea	12	200	212
3.2 Anadyr	6	2	8
4. Khabarovsk	**3**	**48**	**51**
4.1 Okhotsk district	3	48	51
4.2 Amur district	"no data"	"no data"	
4.3 Sovietgavan	"no data"	"no data"	
5. Primore	"no data"	"no data"	
TOTAL	**308**	**278**	**586**

*Only Northwestern Coast

Source: Statistics of Russian Catches of Pacific Salmon 1993. (NPAFC Doc. 103), Pacific Research Institute of Fisheries and Oceanography (TINRO) 1994. ISER file: Gear Units, 1993.

Boats, Gear and Equipment

According to observations made during 1992 and 1993, paint was in short supply, and nearly all coastal vessels appeared to be in a poor state of repair. The problem was exacerbated by the fact that black steel seemed to be the only material available. Even for critical deck machinery, galvanized steel, marine aluminum, and stainless steel seemed to be unobtainable. No fiberglass fishing vessels were observed, and none of aluminum other than a class of small (16 foot) outboard-powered, riveted skiffs. Plywood and planked wooden vessels likewise are scarce, although photos from other parts of the coast indicate the existence of wooden boats.

Gear is largely made by the fishermen themselves, using web, lines, and other components of either Russian manufacture, or imported from major gear-manufacturing countries like Japan and Korea. A Russian-built, two-cylinder, 30 h.p. outboard was still the standard propulsion for skiffs, but Yamaha and other foreign makes were starting to show up. Russian-built inboard-outboard units and jet drive units were observed on some recreational boats, but not on commercial fishing craft.

Observed near shore vessels had minimal electronic equipment, mostly tube sets of Russian manufacture, with some Japanese or German units. An AM radio and recording depth sounder are common, while radar, LORAN, GPS, and VHF single sideband radios were rare or non-existent.

Safety

Safety equipment was generally absent, or inadequately maintained. No PFDs, EPIRBs, or life rafts were seen on coastal fishing boats, and even basics like flares and fire extinguishers were absent from observed vessels. The maritime colleges provide shipboard safety training but most inshore fishermen do not attend the colleges. There appears to be no mandatory safety standards or inspections for inshore vessels. Fishermen report that there are many injuries and fatalities from deck accidents, fewer from sinkings. Kolkhozes have organized rescue units, and the military and maritime territorial guards conduct SAR missions, but fishermen say that most rescues are performed by nearby fishing vessels.

Crew Payment

Fishermen work for a share of the value of the catch, as they do in Alaska, and those in Kamchatka, at least, have been considered to be among the best paid workers in Russia. In 1992 fishermen incomes were estimated to range from a low of $40 per month (about the equivalent of lower ranking state salaried workers) to as high as $750 a month. Most salmon fishermen work seasonally but are engaged in other fisheries as well as other enterprises such as berry and mushroom picking, bear hunting, and trapping.

It is assumed that with the privatization of production, fishermen's incomes are rising. But at the same time, the upheavals occurring are forcing the closure of many enterprises, and crippling many which continue to operate. A study by one resource economist produced an estimate that 25 to 30 percent of all Kamchatka fishermen were without jobs going into 1995, and another indeterminate percentage was continuing on the job but receiving no payment.

VII. RUSSIAN SALMON PROCESSING

During the current transitional phase of the Russian economy, Russian salmon processing appears to be divided into two classes of operations:

- Corporate, joint venture and foreign-owned, including state enterprises, which are characterized by floating or shore-based industrial facilities with considerable mechanization.

- Local, small-scale operations owned by individuals, families or *kolkhozes*, which are labor-intensive and generally lacking in up-to-date technology.

Overview of Salmon Products and Markets

Until the breakup of the Soviet Union, salmon processing was generally directed at two markets: exports of canned salmon to certain eastern and western European nations, and the domestic market which was largely served with salted, smoked and canned products, along with some fresh and lower-grade frozen products as supplies and transportation allowed. The widely held perception is that since conversion to a market economy there has begun a shift to higher quality frozen production for export to Japan and other markets. However, the extent to which this has actually occurred is difficult to verify.

Meanwhile, some production managers have expressed the opinion that there is sufficient demand within the domestic market for traditional products, and there is no need to make expensive modifications. The standard salmon product in Russian Far East retail markets is a dried, or dry smoked, split fish, and this type of processing is done in factories, sheds, and camps up and down the coast, with virtually no equipment required beyond a sharp knife. Fish are dry salted in concrete bunkers and then either split for the dried fish market, or freshened and smoked using local woods.

A product which is becoming more common, especially in the western-style supermarkets, now appearing in Russian cities, is vacuum-packed frozen salmon, either steaked or whole. The growing presence of these products indicates increased use of freezers.

Salmon caviar, or *ikra*, is a virtual staple of the Far Eastern diet, and is produced in all kinds of processing operations, from the most modern and sanitary to the backyard sheds of poachers. Although Russian scientists have developed processes using enzymes to break down the walls of the egg sacs, it appears that most egg separation is done by hand, using a screen. Some *ikra* is heavily salted and canned, but much of the product available is lightly salted in liter or half liter jars, and presumably has a limited shelf life.

Description of a Processing Operation

Terry Johnson's notes provide the following description of a salmon cannery at Octyabrsky in Kamchatka. It is important to recognize these observations may quickly become outdated because of apparently rapid investment in processing facilities. Nearly every processing manager interviewed indicated an intention to invest in freezer technology as soon as financing becomes available.[54]

54 Pictures of Russian salmon processing operations may be found on pages 69 and 1092 of Natalie Fobes, *Reaching Home: Pacific Salmon, Pacific People*. Seattle (Alaska Northwest Books, 1994).

The cannery, located in a fishing village of about 2,000 near the mouth of the Balshaya River, is a large, rambling wooden complex. Inside the building is a row of about six retorts. In adjacent rooms are slime lines, canning lines, boxing and so on. Sanitation is not inspiring. Fish parts lie in water flowing across the tile and rough concrete floors. There are no insect barriers at the doors, no footbaths, only a dirty wet rag for wiping shoes. There is no smell of sanitizing agents, just faint fishy odors. Some of the fixtures are aluminum but most are painted steel; there is little evidence of even galvanized steel. We're issued white smocks and hats.

We are met by a big woman with huge hazel eyes, gold teeth, and enthusiastic grace, who is production manager, and she takes us on a tour of the plant. Some of the machinery is Japanese, recently purchased, but mostly Russian. It is effective looking; there is lots of mechanized transport inside the plant for both raw materials and products. Each can is manually inspected for good seams, lack of dents, etc., and manually packaged in boxes of 24. The lines were working on previously frozen pinks. They didn't look too good—lots of ribs poking free—but that may have been a function of thawing. By-catch (coho, dolly varden) are minced. A machine squirts the mince into cans like soft ice cream. Hearts, livers, milk sacs are made into a pate and canned. *Ikra* (roe—individual eggs) is separated manually over 1 meter-square screens of twine, strung like tennis rackets.

At the unloading dock we saw a wooden structure with sluice chutes and hand-operated wooden lift gates for sorting and directing the flow of fish .

The manager tells us that canned pink wholesales for 30 rubles/can ($.15 for a 245 gram can, or about $14/case for the 48-tall equivalent, about half the discount price of American canned pinks). After the tour she took us to the plant's tasting room, a nicely-appointed lounge, where we stuffed ourselves on canned pink, sockeye, mince, and smoked sockeye. She gave us a whole smoked sockeye to take with us. Samples on a shelf indicated the plant also produces canned ikra, organ paste, cod, saury, minced salmon, squid and pollock.

From talking to fishermen and others in town I deduced that the plant is largely a salmon operation using locally-produced fish from Balshaya River, but also processes bottomfish delivered by seiners (what we would call Danish seiners—boats which deploy bottom fishing roundhaul nets). Several seiners were tied to the wharf but none seemed to be fishing when I visited. It was the wrong time of the year for bottomfishing, as I understand. Salmon fishing was halted due to poor sockeye and coho runs, although the pink run had apparently been pretty good. It kind of surprised me to be at the mouth of a fairly large salmon stream in mid-August and not only not see anyone fishing, but not even see any jumpers in the river. Later, however, I did see a couple hundred spotted seals working the surfline and rips at the actual river mouth, which indicated that a run of fish was underway.

While the condition of the cannery was no worse than some I have seen in Alaska, there was a generally grim feel about the village. Windblown and dusty, with few people on the street, it felt remote, and poor. Adding to that

sense was the large number of derelict boats on the beaches, wooden and steel.

Many observers have suggested that Russian salmon exports are and will continue to be limited by processing technology. Terry Johnson gives the following example of problems that can arise in upgrading technology.[55]

> Most Russian processors lack the processing technology required to produce top-quality export products. Few have the cash to buy much new equipment outright. Even where cash or credit is available, there are logistical and even cultural impediments to immediate application of advanced technology... A case in point: In the port-town of Octyabrsky at the mouth of the Balshaya River, I spoke with a refrigeration engineer hired to set up a cold storage facility at an existing cannery. The design called for nine storage rooms with a capacity of 5,000 tons. The system was of Finnish design and included components from Germany and Holland. The equipment had been purchased five years earlier but due to bureaucratic delays the construction was not started for three years. By the time the plant was built, so much of the machinery had been stolen or was ruined by exposure to the weather that only enough remained to equip three rooms with a total capacity of 1,500 tons.

55 Terry Johnson, "The Russian Bear Goes Fishing," *Pacific Fishing*, March 1993.

VIII. RUSSIAN SALMON MARKETS

While reported volumes of "Russian" salmon imported to Japan have increased, it is not entirely clear how much of that is actually Russian production, and how much is produced by Japanese vessels fishing inside the Russian economic zone. Indications are that actual salmon exports to Japan by Russian producers have not increased as much as anticipated by some industry observers. Part of the reason may lie in the problems that Russian processors have had in attracting the capital and obtaining the processing and freezing machinery they need to meet Japanese quality standards.

In 1992, the Alaska Center for International Business summarized Russian salmon markets as follows:

> Lower valued pink and chum salmon are generally kept for the domestic market and exports to Eastern Block countries. However, with increased production and processing capabilities, more of the frozen product is exported to Japan. Higher value products such as caviar and canned salmon (mostly sockeye, with some chinook and coho) are exported to European countries.[56]

According to Terry Johnson, "most of Kamchatka's pink salmon is sold on the domestic market in pan-frozen, salted, smoked or canned form, and some canned pinks are exported to European countries."[57]

Russian Salmon Exports

Political and economic change has increased export opportunities for the Russian Far East fishing industry. Exports of Russian Far East fish, including salmon, are increasing. The increase in exports is due to a variety of factors, ranging from reduced restrictions on exports to increased demand by foreign buyers.

Export Regulation

In addition to the agencies responsible for salmon management, the development of the Russian salmon industry is affected by another layer of bureaucratic control—the regulation of exports. During the Soviet period, *Sovrybflot* had exclusive control over fisheries exports. While the *Sovrybflot* monopoly has ended, fisheries exports are still subject to a confusing and changing set of tax and quota regulations.

With frequent changes, it is not easy to get a picture of exactly what the regulations may apply to salmon exports at any given time. In 1993, *Seafood Leader* described the situation as follows:[58]

> What happens when you unleash hundreds of exporters on the world's seafood markets, who have had no experience selling seafood (or anything else for that matter)? What you get is chaos—and low prices. In their mad dash for hard currency, Russia's unfettered seafood industry has dumped millions of tons of seafood at prices far below the going rate. Stories abound

56 Shawneen Conover, "Russian Salmon Outlook," *Pacific Rim Fisheries* Update, June 1992.
57 Terry Johnson, "Kamchatka Salmon Landings," *Pacific Rim Fisheries* Update, December 1992.
58 Peter Redmayne, "Russia's Wild Wild East." *Seafood Leader*, July / August 1993.

of fishing vessel captains trading their catch at sea for used cars, or paying for shipyard work abroad in fish. Officials at *Sovrybflot*, which once had a lock on Soviet seafood exports, claim Russian fish is being sold for less than a third the price of the same fish from the United States or Canada because "Russian exporters are acting on their own and are not unified." To restore order to the market, Sovrybflot and Moscow have recently proposed establishing a small "united" association of seafood exporters. But in a country where decrees from Moscow are routinely ignored, it may prove very hard to rein in Russia's free market forces and put the genie back in the bottle."

A May 1993 article in a Japanese trade publication described export controls as follows:[59]

> Russian fisheries exports require an export license. The Fisheries Committee sets the export quota, which it allocates to the various major fisheries organizations. This groups then distribute the quotas to organizations under their respective umbrellas. In July of 1992, Yeltsin decreed that an export tax of 26% would be levied against exports by joint venture companies and 20% for exports by Russian domestic organizations.
>
> Under perestroika, the different industries have been given autonomy in their activities and this has resulted in increased efforts to export. Not all groups are capable of effective trade with foreign countries, and it is important to exercise some caution in determining the export capabilities of Russian trade partners. Of greatest note in Japanese trade with Russia is the increase in direct imports of live and fresh fisheries products into Hokkaido. The number of different fisheries exports to Japan has increased considerably over the past few years. While pink salmon was the main salmon export for many years, the Japanese have more recently included sockeye and coho salmon in their transactions. And the Russians have also begun exporting sujiko... The increase in the number of export commodities has been largely due to the considerable increase in the number of Japanese buyers.
>
> *Sovrybflot* has traditionally been the channel for exports of Russian fisheries products, acting as the agent for producers. This year, however, they are reportedly considering increased active fisheries trade, buying domestic fish themselves and exporting the fish overseas. And Dalryba has indicated a desire to form an export association for fisheries products.

Another article described changes in export procedures:[60]

> Tentative agreements are being finalized, but operations could be hindered by the change in export procedures this year. While last year's production could be exported freely, this year's exports will require a permit issued by the central government in Moscow. This is the result of the declaration

59 *Bill Atkinson's News Report*, May 19, 1993.
60 *Bill Atkinson's News Report*.

made on March 15th, listing fisheries products as a "national strategic resource" This new regulation limits the number of authorized Russian exporters, while allowing the central government to monitor sales prices for fisheries exports. Contracts concluded prior to March 15th reportedly do not require export licenses. With most of the contracts for this season's sujiko and ikura concluded after the control date, however, the Japanese importers face the risk that high prices will be forced on them by Moscow.

Another article described the effects of loosening export restrictions on the price of Russian salmon:[61]

> The shift to individual sales has tended to weaken the Russian bargaining position. As virtually anyone can trade with Russian organizations, however, competition among Japanese buyers has also increased, resulting in generally higher prices for Japanese fisheries imports from Russia.

Japanese Imports of Russian Salmon

It is not an easy matter to determine just how much Russian salmon is being exported and where it is going. Russian export data are not readily available. Peter Christiansen wrote:[62]

> Determining how much Russian salmon goes overseas is very difficult... Besides salmon caught in joint-ventures and directed fisheries, much product intended for Russia's internal market leaves the country through various import-export companies, usually at quite low prices. Some salmon just gets poached, or sold illegally.

The most readily available source of information on Russian salmon exports is Japanese import data. As shown in the table on the following page, frozen salmon is by far the most important salmon product imported by Japan from Russia. Total frozen salmon imports from Russia have increased rapidly, from under three thousand metric tons in 1990 to more than 21 thousand metric tons in 1993. Of these, frozen sockeye accounted for 7.4 thousand metric tons, while frozen "other Pacific" (pink and chum) salmon accounted for 13.7 thousand metric tons.

The tables on the next two pages provide detailed data on Japanese salmon imports during the period 1990-93. Despite the rapid growth in frozen salmon imports during this time, Russian salmon still accounted for only 11 percent of the volume of Japanese frozen salmon imports in 1993.

61 *Bill Atkinson's News Report*, June 2, 1993.
62 Peter H. Christiansen, Letter to Dr. Evelyn Pinkerton, November 2, 1993.

Japanese Imports of Russian Salmon, 1990-1993

	Volume (kilograms				Value (thousand yen)				Average Price (yen/kilogram)			
Product	1990	1991	1992	1993	1990	1991	1992	1993	1990	1991	1992	1993
Fresh Salmon	63,406		133,123	99,083	74,459		10,403	14,375	1174		78	145
Frozen Salmon	2,722,657	9,375,160	15,814,164	21,288,636	1,846,001	2,586,072	4,607,887	5,179,638	678	276	291	243
Frozen sockeye salmon (a)			5,859,706	7,407,082			3,523,786	3,392,893			601	458
Frozen coho salmon (b)				158,147				41,138				260
Frozen other pacific salmon			9,954,458	13,723,407			1,084,101	1,745,607			109	127
Canned Salmon	126,670	17,349	23,527	177,389	185,799	20,923	23,256	88,878	1467	1206	988	501
Smoked Salmon		4,489	53,029	23,654		8,441	54,393	23,351		1880	1026	987
Trout	1,342,118	414,276	433,593	395,310	331,226	43,899	34,366	46,550	247	106	79	118
Salmon Roe	235,030	240,305	432,941	474,728	99,069	416,647	825,395		2828	1734	1906	1800

(a) First reported in 1992. (b) First reported in 1993.

Source: Japan Tariff Association data, provided by Alaska Center for International Business. ISER file: Japanese import from Russia, 90-93.

Japanese Imports of Russian Salmon, 1990-1993

Product	Country	Volume (kilograms)				Value (thousand yen)			
		1990	1991	1992	1993	1990	1991	1992	1993
Canned	CANADA	125,474	176,397	301,946	521,108	174,027	212,987	194,072	351,493
	CHILE	0	0	0	48,294	0	0	0	16,869
	NEW ZEALAND	0	843	0	0	0	1,144	0	0
	NORWAY	413	8,238	22,605	86,624	1,576	20,102	46,512	56,060
	OTHER	2,857	49,356	11,984	259,160	7,554	57,268	5,885	115,935
	RUSSIAN/USSR	126,670	17,349	23,527	177,389	185,799	20,923	23,256	88,878
	USA	8,795	113,840	5476,411	282,432	16,305	80,153	301,608	242,743
	TOTAL	264,209	366,023	907,473	1,375,007	385,261	392,577	571,333	871,978
Fresh	AUSTRALIA	829,612	1,384,100	1,444,166	1,231,970	1,254,275	2,073,415	1,937,852	1,424,350
	CANADA	435,451	849,561	1,174,079	1,585,506	583,387	969,129	1,230,182	1,443,574
	CHILE	672,464	728,679	1,027,851	831,361	958,044	986,925	1,270,567	842,128
	NEW ZEALAND	667,037	822,947	763,019	650,970	674,200	611,392	656,491	480,630
	NORWAY	4, 161,229	4,311,710	5,161,240	8,212,466	6,022,198	5,354,118	6,005,617	7,050,582
	OTHER	541,556	536,596	562,254	506,042	766,592	708,215	706,730	559,868
	RUSSIAN/USSR	63,406	0	133,123	99,083	74,459	0	10,403	14,375
	USA	370,473	356,928	462,402	434,804	5509,780	58,882	633,352	439,092
	TOTAL	7,741,228	8,990,521	10,728,134	13,552,202	10,883,935	11,162,076	12,451,194	12,254,599
Frozen	AUSTRALIA	150,983	0	6,373	0	151,447	0	6,883	0
	CANADA	18,907,970	17,796,283	13,410,114	21,366,856	16,952,559	13,828,830	11,642,653	11,969,559
	CHILE	9,900,338	13,905,920	18,435,060	22,679,021	7,523,948	10,178,210	15,540,216	14,038,080
	NEW ZEALAND	813,413	871,930	1,228,243	1,337,940	512,262	555,190	868,269	885,505
	NORWAY	698,161	843,521	6,382,657	3,342,281	731,444	749,694	3,940,289	2,012,445
	OTHER	2,719,681	1,288,685	17,952	357,516	1,076,819	572,400	13,876	105,776
	RUSSIAN/USSR	2,722,657	9,375,160	15,814,164	21,288,636	1,846,001	2,586,072	4,607,887	5,179,638
	USA	114,968,064	90,574,447	93,519,757	128,443,849	92,442,490	54,196,535	70,530,511	62,642,649
	TOTAL	150,881,267	134,655,946	148,814,320	198,816,099	121,236,970	82,666,931	107,150,584	96,833,652
Roe	AUSTRALIA	776	0	0	4,240	2,052	0	0	5,171
	CANADA	1,067,917	779,505	636,859	764,600	1,403,251	825,332	790,354	715,598
	CHILE	149,875	103,525	167,300	104,364	420,904	284,546	487,864	196,232
	NEW ZEALAND	1,060	0	1,190	0	4,582	0	836	0
	NORWAY	155	14,880	10,665	14,930	227	53,014	31,265	40,149
	OTHER	422,436	346,105	398,067	527,353	1,178,512	956,309	1,158,653	1,552,916
	RUSSIAN/USSR	35,030	240,305	432,941	474,728	99,069	416,647	825,237	854,395
	USA	7,410,459	7,838,433	7,710,080	8,284,406	13,311,155	12,414,393	12,458,183	11,900,334
	TOTAL	9,087,708	9,322,753	9,357,102	10,174,621	16,419,752	14,950,241	15,752,392	15,264,795
Smoked	AUSTRALIA	262	12,345	10,798	9,956	997	27,515	31,357	28,429
	CANADA	151,538	201,570	191,580	254,188	363,202	465,181	430,895	448,335
	CHILE	0	0	0	2,308	0	0	0	3,913
	NEW ZEALAND	479	1,700	2,557	2,188	1,895	1,997	5,559	5,997
	NORWAY	52,866	62,162	43,359	63,932	148,864	157,448	114,648	119,733
	OTHER	34,402	20,987	15,060	45,632	128,592	72,259	54,474	61,128
	RUSSIAN/USSR	0	4,489	53,029	23,654	0	8,441	54,393	23,351
	USA	14,034	21,677	43,757	40,244	29,463	56,483	115,180	85,732
	TOTAL	253,581	324,930	360,140	442,102	673,013	789,324	806,506	776,618
Trout	AUSTRALIA	0	0	0	300	0	0	0	397
	CANADA	68,671	23,569	986	77,237	32,195	8,914	230	49,862
	CHILE	1,969,750	3,175,573	7,425,486	8,579,865	1,362,960	2,289,462	5,294,216	5,061,529
	NORWAY	964,930	2,271,167	2,880,318	4,357,812	879,257	1,777,265	2,271,136	2,580,697
	OTHER	5,525,605	3,044,744	2,089,036	2,370,075	4,390,727	2,271,724	1,551,465	1,376,994
	RUSSIAN/USSR	1,342,118	414,276	433,593	395,310	331,226	43,899	34,366	46,550
	USA	530,980	0	14,818	5,901	192,384	0	18,154	4,527
	TOTAL	10,402,054	8,929,329	12,844,237	15,786,500	7,188,749	6,391,264	9,169,567	9,120,556
All Products		178,630,047	162,589,502	183,011,406	240,146,531	156,787,680	116,352,413	145,901,5761	35,122,198

Source: Japan Tariff Association data, provided by Alaska Center for International Business.
ISER file: Japanese import from Russia, 90-93, by type/country

Percentage of Japanese Salmon Imports, by Country, 1990-1993

Product	Country	Percentage of Volume				Percentage of Value			
		1990	1991	1992	1993	1990	1991	1992	1993
Canned	CANADA	47%	48%	33%	38%	45%	54%	34%	40%
	CHILE	0%	0%	0%	4%	0%	0%	0%	2%
	NEW ZEALAND	0%	0%	0%	0%	0%	0%	0%	0%
	NORWAY	0%	2%	2%	6%	0%	5%	8%	6%
	OTHER	1%	13%	1%	19%	2%	15%	1%	13%
	RUSSIAN/USSR	48%	5%	3%	13%	48%	5%	4%	10%
	USA	3%	31%	60%	21%	4%	20%	53%	28%
	TOTAL	100%	100%	100%	100%	100%	100%	100%	100%
Fresh	AUSTRALIA	11%	15%	13%	9%	12%	19%	16%	12%
	CANADA	6%	9%	11%	12%	5%	9%	10%	12%
	CHILE	9%	8%	10%	6%	9%	9%	10%	7%
	NEW ZEALAND	9%	9%	7%	5%	6%	5%	5%	4%
	NORWAY	54%	48%	48%	61%	55%	48%	48%	58%
	OTHER	7%	6%	5%	4%	7%	6%	6%	5%
	RUSSIAN/USSR	1%	0%	1%	1%	1%	0%	0%	0%
	USA	5%	4%	4%	3%	5%	4%	5%	4%
	TOTAL	100%	100%	100%	100%	100%	100%	100%	100%
Frozen	AUSTRALIA	0%	0%	0%	0%	0%	0%	0%	0%
	CANADA	13%	13%	9%	11%	14%	17%	11%	12%
	CHILE	7%	10%	12%	11%	6%	12%	15%	14%
	NEW ZEALAND	1%	1%	1%	1%	0%	1%	1%	1%
	NORWAY	0%	1%	4%	2%	1%	1%	4%	2%
	OTHER	2%	1%	0%	0%	1%	1%	0%	0%
	RUSSIAN/USSR	2%	7%	11%	11%	2%	3%	4%	5%
	USA	76%	67%	63%	65%	76%	66%	66%	65%
	TOTAL	100%	100%	100%	100%	100%	100%	100%	100%
Roe	AUSTRALIA	0%	0%	0%	0%	0%	0%	0%	0%
	CANADA	12%	8%	7%	8%	9%	6%	5%	5%
	CHILE	2%	1%	2%	1%	3%	2%	3%	1%
	NEW ZEALAND	0%	0%	0%	0%	0%	0%	0%	0%
	NORWAY	0%	0%	0%	0%	0%	0%	0%	0%
	OTHER	5%	4%	4%	5%	7%	6%	7%	10%
	RUSSIAN/USSR	0%	3%	5%	5%	1%	3%	5%	6%
	USA	82%	84%	82%	81%	81%	83%	79%	78%
	TOTAL	100%	100%	100%	100%	100%	100%	100%	100%
Smoked	AUSTRALIA	0%	4%	3%	2%	0%	3%	4%	4%
	CANADA	60%	62%	53%	57%	54%	59%	53%	58%
	CHILE	0%	0%	0%	1%	0%	0%	0%	1%
	NEW ZEALAND	0%	1%	1%	0%	0%	0%	1%	1%
	NORWAY	21%	19%	12%	14%	22%	20%	14%	15%
	OTHER	14%	6%	4%	10%	19%	9%	7%	8%
	RUSSIAN/USSR	0%	1%	15%	5%	0%	1%	7%	3%
	USA	6%	7%	12%	9%	4%	7%	14%	11%
	TOTAL	100%	100%	100%	100%	100%	100%	100%	100%
Trout	AUSTRALIA	0%	0%	0%	0%	0%	0%	0%	0%
	CANADA	1%	0%	0%	0%	0%	0%	0%	1%
	CHILE	19%	36%	58%	54%	19%	36%	58%	55%
	NORWAY	9%	25%	22%	28%	12%	28%	25%	28%
	OTHER	53%	34%	16%	15%	61%	36%	17%	15%
	RUSSIAN/USSR	13%	5%	3%	3%	5%	1%	0%	1%
	USA	5%	0%	0%	0%	3%	0%	0%	0%
	TOTAL	100%	100%	100%	100%	100%	100%	100%	100%

Source: Japan Tariff Association data, provided by Alaska Center for International Business.
ISER file: Japanese import from Russia, 90-93, by type/country

The table below provides a very general indication of the share of Japanese imports in total Russian salmon harvests and the extent to which it might be possible for exports to Japan (or other countries) to expand in the future. The table compares reported 1993 Japanese imports with average, maximum and minimum reported Russian salmon harvests during the period 1990-92. (Reliable harvest data for 1993 were not available). The share of Japanese imports in total harvests is calculated after first adjusting for an assumed 74 percent processing yield.

Comparison of 1993 Japanese Imports of Russian Salmon With Long-Term Average Harvest Levels

	Average harvest	Maximum harvest	Minimum harvest	1993 imports
Russian Harvest, 1980-92 (000 mt)				
Sockeye	8,811	16,457	2,967	
Coho	3,717	5,993	2,253	
Pink & Chum	109,419	248,232	51,493	
Japanese Imports of Frozen Salmon from Russia, 1993 (000 mt)				
Sockeye				7,407
Coho				158
Pink & Chum				13,723
1993 Japanese Imports of Frozen Salmon from Russia as Share of Russian Harvests (assuming 74% processing yield)				
Sockeye	114%	61%	337%	
Coho	6%	4%	9%	
Pink & Chum	17%	7%	36%	

ISER file: Import/harvest comparison.

Assuming that both sets of data are correct—an assumption of which we cannot be entirely certain—1993 Japanese imports of Russian sockeye salmon exceeded average Russian sockeye harvests over the previous 13 years. This suggests that by 1993 most Russian sockeye harvests were already being exported to Japan, leaving little room for future expansion of Japanese imports of frozen Russian sockeye.

In contrast, 1993 Japanese imports of Russian frozen pink and chum salmon were only 17 percent of average pink and chum harvests over the previous 13 years. This suggests that a much smaller share of pink and chum salmon are exported to Japan, and that there is potential for expansion of Japanese pink and chum salmon imports from Russia.

Russian Salmon Export Prices

Peter Christiansen wrote:

> Unfortunately, I don't have hard data on prices for pink salmon from Russia entering the Japanese market. Each producer here makes a separate deal with each Japanese joint venture partner, or Japanese buyer, but this information is hard to get ahold of, and considered quite confidential—a 'commercial secret'. Many Russian ventures do indeed catch salmon and sell them live to Japanese at-sea processors.[63]

63 Peter H Christiansen, Letter to Dr. Evelyn Pinkerton, November 2, 1993.

The best source of information on Russian salmon export prices may be average Japanese import prices. The table below shows that average Japanese import prices are significantly lower for Russian salmon than for American, for all products except salmon roe. (Note that in the case of salmon roe, the reason may result from a different species and product mix). Import prices for Russian frozen sockeye prices were 75 percent of import prices for American frozen sockeye in 1992 and 1993. For "fresh other Pacific salmon"—presumably mostly pink salmon, the Russian prices were extremely low—only 6 percent and 13 percent of the American prices for 1992 and 1993.

Comparison of Average Japanese Import Price for Russian and American Salmon, 1990-93, by Product (yen/kilogram)

Country	Product	1990	1991	1992	1993
RUSSIA/USSR	Frozen Red Salmon			601	458
USA	Frozen Red Salmon			804	505
Russia as % of USA	**Frozen Red Salmon**			**75%**	**91%**
RUSSIA/USSR	Frozen Coho Salmon				260
USA	Frozen Coho Salmon				494
Russia as % of USA	**Frozen Coho Salmon**				**53%**
RUSSIA/USSR	Frozen Otr Pac Salmon			109	**127**
USA	Frozen Otr Pac Salmon			535	320
Russia as % of USA	**Frozen Otr Pac Salmon**			**20%**	**40%**
RUSSIA/USSR	Frozen Pac Salmon	678	276		
USA	Frozen Pac Salmon	804	598		
Russia as % of USA	**Frozen Pac Salmon**				
RUSSIA/USSR	Fresh Pac Salmon			78	145
USA	Fresh Pac Salmon			1249	1155
Russia as % of USA	**Fresh Pac Salmon**			**6%**	**13%**
RUSSIA/USSR	Fresh Salmon	1174			
USA	Fresh Salmon	1487	1286		
Russia as % of USA	**Fresh Salmon**	**79%**			
RUSSIA/USSR	Salmon Roe	2828	1734	1906	1800
USA	Salmon Roe	1796	1584	1616	1436
Russia as % of USA	**Salmon Roe**	**157%**	**109%**	**118%**	**125%**
RUSSIA/USSR	Smoked Salmon		1880	**1026**	987
USA	Smoked Salmon	2099	2606	2632	2130
Russia as % of USA	**Smoked Salmon**		**72%**	**39%**	**46%**
RUSSIA/USSR	Trout (Masu)	247	106	79	118
USA	Trout (Masu)	362		1225	767
Russia as % of USA	**Trout (Masu)**	**68%**		**6%**	**15%**

Source: Japan Tariff Association data, provided by Alaska Center for International Business.
ISER file: Japanese import from Russia, 90-93, by type/country

Average Price of Japanese Salmon Imports, by Product and Country, 1990-93 (yen/kilogram)

Country	Product	1990	1991	1992	1993
RUSSIA/USSR	**Frozen Red Salmon**			**601**	**458**
CANADA	Frozen Red Salmon			1095	624
NEW ZEALAND	Frozen Red Salmon			713	669
USA	Frozen Red Salmon			804	505
RUSSIA/USSR	**Frozen Coho Salmon**				**260**
CANADA	Frozen Coho Salmon				550
CHILE	Frozen Coho Salmon				617
USA	Frozen Coho Salmon				494
RUSSIA/USSR	**Frozen Otr Pac Salmon**			**109**	**127**
CANADA	Frozen Otr Pac Salmon			530	364
CHILE	Frozen Otr Pac Salmon			842	611
NEW ZEALAND	Frozen Otr Pac Salmon			706	662
NORWAY	Frozen Otr Pac Salmon			600	609
OTHER	Frozen Otr Pac Salmon				243
USA	Frozen Otr Pac Salmon			535	320
RUSSIA/USSR	**Frozen Pac Salmon**	**678**	**276**		
AUSTRALIA	Frozen Pac Salmon	658			
CANADA	Frozen Pac Salmon	896	777		
CHILE	Frozen Pac Salmon	756	724		
NEW ZEALAND	Frozen Pac Salmon	630	637		
NORWAY	Frozen Pac Salmon	1077	944		
OTHER	Frozen Pac Salmon	382	364		
USA	Frozen Pac Salmon	804	598		
AUSTRALIA	Frozen Atl Salmon	1061		1080	
CANADA	Frozen Atl Salmon	1214	746	1101	225
CHILE	Frozen Atl Salmon	835	860	866	672
NEW ZEALAND	Frozen Atl Salmon			790	
NORWAY	Frozen Atl Salmon	1045	886	616	602
OTHER	Frozen Atl Salmon	778	910	773	609
USA	Frozen Atl Salmon	786		1040	
CANADA	Fresh Red Salmon			1157	859
CHILE	Fresh Red Salmon			1324	
NEW ZEALAND	Fresh Red Salmon			768	
USA	Fresh Red Salmon			1513	979
CANADA	Fresh Coho Salmon				826
CHILE	Fresh Coho Salmon				1063
USA	Fresh Coho Salmon				671
RUSSIA/USSR	**Fresh Otr Pac Salmon**			**78**	**145**
AUSTRALIA	Fresh Otr Pac Salmon			1371	1010
CANADA	Fresh Otr Pac Salmon			1038	914
CHILE	Fresh Otr Pac Salmon			1306	1169
NEW ZEALAND	Fresh Otr Pac Salmon			860	738
NORWAY	Fresh Otr Pac Salmon			1161	887
OTHER	Fresh Otr Pac Salmon			1232	1012
USA	Fresh Otr Pac Salmon			1249	1155
RUSSIA/USSR	**Fresh Salmon**	**1174**			
AUSTRALIA	Fresh Salmon	1512	1498		
CANADA	Fresh Salmon	1340	1141		
CHILE	Fresh Salmon	1425	1354		
NEW ZEALAND	Fresh Salmon	1011	743		
NORWAY	Fresh Salmon	1447	1242		
OTHER	Fresh Salmon	1416	1320		
USA	Fresh Salmon	1487	1286		

(Continued)

Average Price of Japanese Salmon Imports, by Product and Country, 1990-93 (yen/kilogram)

Country	Product	1990	1991	1992	1993
AUSTRALIA	Fresh Alt Salmon			1341	1156
CANADA	Fresh Alt Salmon			1125	924
CHILE	Fresh Alt Salmon			1193	941
NEW ZEALAND	Fresh Alt Salmon			1042	916
NORWAY	Fresh Alt Salmon			1164	858
OTHER	Fresh Alt Salmon			1257	1108
USA	Fresh Alt Salmon			1194	899
CANADA	Canned Red Salmon	6295	4610	3103	1473
NEW ZEALAND	Canned Red Salmon		1357		
NORWAY	Canned Red Salmon	3816	2348	2119	1758
OTHER	Canned Red Salmon	3412	1155	347	911
USA	Canned Red Salmon	4508	2790	4043	2475
CANADA	Canned Other Salmon	1378	1156	618	651
CHILE	Canned Other Salmon				349
NORWAY	Canned Other Salmon		2503	2033	424
OTHER	Canned Other Salmon	1655	2350	1044	341
USA	Canned Other Salmon	1835	558	542	660
RUSSIA/USSR	**Salmon Roe**	**2828**	**1734**	**1906**	**1800**
AUSTRALIA	Salmon Roe	2644			1220
CANADA	Salmon Roe	1314	1059	1241	936
CHILE	Salmon Roe	2808	2749	2916	1880
NEW ZEALAND	Salmon Roe	4323		703	
NORWAY	Salmon Roe	1465	3563	2932	2689
OTHER	Salmon Roe	2790	2763	2911	2945
USA	Salmon Roe	1796	1534	1616	1436
RUSSIA/USSR	**Smoked Salmon**		**1880**	**1026**	**987**
AUSTRALIA	Smoked Salmon	3805	2229	2904	2855
CANADA	Smoked Salmon	2397	2308	2249	1764
CHILE	Smoked Salmon				1695
NEW ZEALAND	Smoked Salmon	3956	1175	2174	2741
NORWAY	Smoked Salmon	2816	2533	2644	1873
OTHER	Smoked Salmon	3738	3443	3617	1340
USA	Smoked Salmon	2099	2606	2632	2130
RUSSIA/USSR	**Trout (Masu)**	**247**	**106**	**79**	**118**
AUSTRALIA	Trout (Masu)				1323
CANADA	Trout (Masu)	469	378	233	646
CHILE	Trout (Masu)	692	721	713	590
NORWAY	Trout (Masu)	911	783	789	592
OTHER	Trout (Masu)	795	746	743	581
USA	Trout (Masu)	362		1225	767

Source: Japan Tariff Association data, provided by Alaska Center for International Business.
ISER file: Japanese import from Russia, 90-93, by type/country

In 1993, a Japanese trade press article wrote:[64]

> The position of Japanese-caught sockeye salmon (joint venture product from Russian waters) has changed dramatically, no longer to maintain its special "high prices." A total of 8,000 tons was landed by the Japanese fleet last year, and wholesale prices through early 1994 were able to maintain a level of 1300 yen to 1800 yen/kilo. This month, however, the wholesale price has fallen dramatically, to a level between 800 and 1200 yen/kilo. Part of the problem is the inability to compete with cheaper sockeye salmon, especially import frozen sockeye salmon from Russia which is priced as low as 600 yen/kilo.

Quality of Russian Salmon Exports

Quality has obviously been a limiting factor in the expansion of Russian fisheries exports, including salmon. One indicator of this problem are reports about new inspection procedures in the Japanese trade press:

> The Russian Fisheries Committee has expressed their intention to increase their inspection and controls for both quality and weights of fisheries products exported to Japan. The various Russian fisheries product export groups will form working committees to develop inspection procedures based on conditions determined at the time that contracts are entered into with Japanese buyers. A high-level official from the Russian Embassy in Japan has already returned to Moscow to meet with economists and customs officials in the Ministry of Finance to strengthen inspection procedures for exports to Japan.
>
> The new policy adds to resource conservation and pollution prevention efforts by the government. In June, there was a meeting of representatives of the New Japan Inspection Association, resulting in the development of an inspection program for Russian fisheries products. A new organization—Marine Fish Regulatory Association—was established in Tokyo, with responsibility for import Russian seafood inspection. Upon receiving a request from a Japanese importer, the Association will arrange for an inspector at any port in Japan within 48 hours. The New Japan Inspection Association has received certification from Marine Fish and has opened an office in Otaru (Hokkaido), a major entry port for Russian fisheries products.
>
> At this point, the new inspection program appears to be more show than reality. Since the agreement was signed and Marine Fish established, the group has yet to receive a request for inspection from any Japanese importer of Russian fisheries products. The Russian government doe not want this new program to fade away, however, and they are working to create concrete procedures within Russia itself.[65]

64 *Bill Atkinson's News Report*, April 13, 1994.
65 *Bill Atkinson's News Report*, August 3, 1994.

Last year, an agreement was reached between Russia and Japan to form a seafood inspection program aimed at improving the image of Russian seafood products in Japan. The Marine Fish Inspection Association was formed to arrange for inspection of seafood products. The actual inspections are conducted by the Shin-Nihon Inspection Association. The new program has been plagued, however, with a lack of requests by Japanese importers.[66]

Russian Canned Salmon Exports

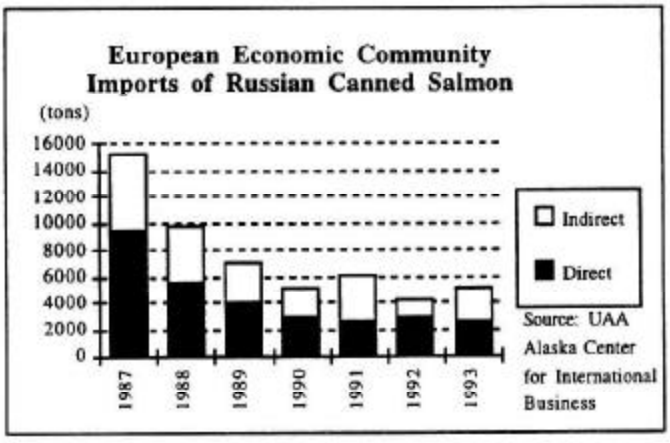
There is speculation that "large amounts of Russian pinks harvested and processed by Japanese factory ships are going elsewhere—possibly to Hong Kong or Bangkok, where they are sold into world salmon markets, competing head-on with Alaskan pink salmon."[67]

There is no question that at least some Russian canned salmon is being sold on the world market. For example, the following page shows an advertisement from the British publication Food News for "Arctic Pride" canned red and pink salmon from "Russian Cold Water" offered by the Korean firm Oram & Co. The advertisement shows both half-pound and one-pound cans (approximate weights) with pull tab tops.

At present, very little if any canned salmon is being imported directly into the United States from Russia. U.S. import data show total canned salmon imports of only 193 tons in 1993, compared with total U.S. canned salmon exports of 38,333 tons. All but 15 tons of U.S. 1993 canned salmon imports were from Canada, Iceland, Norway, or the United Kingdom.

However, significant quantities of Russian canned salmon *are* being sold to European markets, where they compete with U.S. and Canadian canned salmon. Evidence of this is provided by data (shown in the table on the page following the "Arctic Pride" advertisement) for European Economic Community imports of canned salmon in 1992 and 1993.

Imports of canned salmon directly from Russia represented 7.1 percent of European canned salmon imports in 1993. Other imports of probable Russian origin (from Thailand, Malaysia, Philippines, China, South Korea, and Singapore) totaled 7.7 percent of European canned salmon imports in 1993. Thus imports of direct or indirect Russian origin accounted for nearly 15 percent of the market. The average price (as measured in ecu's/kilo) for canned imports from Russia was only 60 percent of the average price for canned imports from the United States.



66 *Bill Atkinson's News Report*, October 26, 1994.
67 *The Alaska Economic Report*, April 24, 1992, No. 8/92.

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"ARCTIC PRIDE" *from Russian Cold Water*

ORAM & CO., INC.

C.P.O. Box 2561, Seoul 100-625 Korea
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European Economic Community Imports of Canned Salmon, by Origin, 1992 and 1993

EEC-12 Countries

Origin	1992 tons	1993 tons	1992 ecus (000)	1993 ecus (000)	1992 % of tons	1993 % of tons	1992 % of ecus	1993 % of ecus	1992 ecu's/kilo	1993 ecu's/kilo
USA	20,974	19,841	79,589	83,158	52.1%	56.3%	53.2%	56.7%	3.79	4.19
Canada	13,268	9,010	50,734	39,488	32.9%	25.6%	33.9%	26.9%	3.82	4.38
Russia: Direct	2,736	2,487	6,563	5,490	6.8%	7.1%	4.4%	3.7%	2.40	2.21
Russia	1,693	2,487	4,100	5,490	4.2%	7.1%	2.7%	3.7%	2.42	2.21
Soviet Union	1,043		2,463		2.6%	0.0%	1.6%	0.0%	2.36	
Other: Probable Russian Origin	1,483	2,700	3,406	7,595	3.7%	7.7%	2.3%	5.2%	2.30	2.81
Thailand	707	1,126	1,567	2,958	1.8%	3.2%	1.0%	2.0%	2.22	2.63
Malaysia	562	375	1,494	1,223	1.4%	1.1%	1.0%	0.8%	2.66	3.26
Phillipines	112		164		0.3%	0.0%	0.1%	0.0%	1.46	
China	55		94		0.1%	0.0%	0.1%	0.0%	1.71	
South Korea	31	1,130	64	3,255	0.1%	3.2%	0.0%	2.2%	2.06	2.88
Singapore	16	69	23	159	0.0%	0.2%	0.0%	0.1%	1.44	2.30
Total: Probable Russian Origin	4,219	5,187	9,969	13,085	10.5%	14.7%	6.7%	8.9%	2.36	2.52
Other countries	1,834	1,177	9,269	10,909	4.6%	3.3%	6.2%	7.4%	5.05	9.27
Total	40,295	35,215	149,561	146,640	100.0%	100.0%	100.0%	100.0%	3.71	4.16

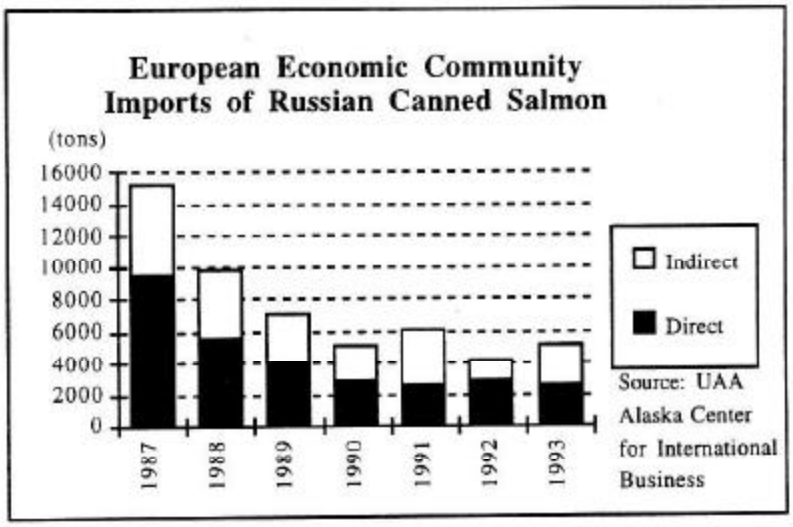
United Kingdom

Origin	1992 tons	1993 tons	1992 ecus (000)	1993 ecus (000)	1992 % of tons	1993 % of tons	1992 % of ecus	1993 % of ecus	1992 ecu's/kilo	1993 ecu's/kilo
USA	16,641	17,600	66,857	74,724	61.0%	69.8%	61.0%	69.0%	4.02	4.25
Canada	9,906	6,187	40,690	29,401	36.3%	24.5%	37.1%	27.1%	4.11	4.75
Russia: Direct	313	748	563	1,642	1.1%	3.0%	0.5%	1.5%	1.80	2.20
Russia		748		1,642	0.0%	3.0%	0.0%	1.5%		2.20
Soviet Union	313		563		1.1%	0.0%	0.5%	0.0%	1.80	
Other: Probable Russian Origin	355	391	784	1,276	1.3%	1.6%	0.7%	1.2%	2.21	3.26
Thailand	92	68	206	198	0.3%	0.3%	0.2%	0.2%	2.24	2.91
Malaysia	135	64	472	282	0.5%	0.3%	0.4%	0.3%	3.50	4.41
Phillipines	32		42		0.1%	0.0%	0.0%	0.0%	1.31	
China	65				0.2%	0.0%	0.0%	0.0%	0.00	
South Korea	31	259	64	796	0.1%	1.0%	0.1%	0.7%	2.06	3.07
Singapore					0.0%	0.0%	0.0%	0.0%		
Total: Probable Russian Origin	668	1,139	1,347	2,918	2.4%	4.5%	1.2%	2.7%	2.02	2.56
Other countries	81	294	731	1,317	0.3%	1.2%	0.7%	1.2%	9.02	4.48
Total	27,296	25,220	109,625	108,360	100.0%	100.0%	100.0%	100.0%	4.02	4.30

Netherlands

Origin	1992 tons	1993 tons	1992 ecus (000)	1993 ecus (000)	1992 % of tons	1993 % of tons	1992 % of ecus	1993 % of ecus	1992 ecu's/kilo	1993 ecu's/kilo
USA	3,370	1,559	10,060	5,946	54.5%	34.2%	56.0%	39.5%	2.99	3.81
Canada	1,017	1,363	3,033	4,709	16.4%	29.9%	16.9%	31.3%	2.98	3.45
Russia: Direct	1,033	228	2,922	479	16.7%	5.0%	16.3%	3.2%	2.83	2.10
Russia	861	228	2,474	479	13.9%	5.0%	13.8%	3.2%	2.87	2.10
Soviet Union	172		448		2.8%	0.0%	2.5%	0.0%	2.60	
Other: Probable Russian Origin	611	1,197	1,275	3,146	9.9%	26.3%	7.1%	20.9%	2.09	2.63
Thailand	365	312	756	680	5.9%	6.8%	4.2%	4.5%	2.07	2.18
Malaysia	187	16	420	42	3.0%	0.4%	2.3%	0.3%	2.25	2.63
Phillipines					0.0%	0.0%	0.0%	0.0%		
China	43		76		0.7%	0.0%	0.4%	0.0%	1.77	
South Korea		800		2,265	0.0%	17.6%	0.0%	15.1%		2.83
Singapore	16	69	23	159	0.3%	1.5%	0.1%	1.1%	1.44	2.30
Total: Probable Russian Origin	1,644	1,425	4,197	3,625	26.6%	31.3%	23.3%	24.1%	2.55	2.54
Other countries	158	208	688	763	2.6%	4.6%	3.8%	5.1%	4.35	3.67
Total	6,189	4,555	17,978	15,043	100.0%	100.0%	100.0%	100.0%	2.90	3.30

Source: EEC trade data, provided by University of Alaska Anchorage Alaska Center for International Business. ISER file: EU-12 Canned Salmon Imports.



Australian imports of canned salmon from countries other than the United States or Canada represented 13 percent of total Australian imports in 1990/91, 9 percent in 1991/92, 10 percent in 1992/93, 6 percent in 1993/94, and 11 percent in 1994/95 (data for July-November). As with the European market, these data suggest that Russian canned salmon represents a relatively small, but not unimportant, share of Australian canned salmon imports.[68]

Aside from the potential for Russian exports of canned salmon to cut into Alaska's market share and to depress prices, another concern is the effect of Russian product on the quality reputation of canned salmon in general. According to ASMI's trade representative in Great Britain, imports of Russian-origin canned salmon from Malaysia, the Philippines and Korea are of noticeably lower quality than imports from Alaska and Canada, and their effect on consumers' attitudes toward canned salmon are potentially significant.[69] Recently, 4 million cans of Russian canned salmon were destroyed by British authorities after tests revealed contamination.[70]

68 Data provided by the Alaska Seafood Marketing Institute's Austrailian representative.
69 Personal communication, Andrew Brown, ASMI UK Trade Liason Officer, February 1995, Anchorage, Alaska.
70 *Alaska Seafood Marketing Institute Annual Report*, 1994, page 4.

IX. FOREIGN INVESTMENT IN THE RUSSIAN SALMON INDUSTRY

Japanese Investment

Russian salmon exports are linked to foreign investments, in particular by the Japanese. Many people say that if Russia needs cash to develop its fisheries, Japan will supply it. It is true that some Japanese companies are offering cash and technology; but a territorial dispute between Japan and Russia over the Kurile Islands has put a damper on trade. Furthermore, Japanese corporate officials have told us that they are taking a go-slow approach because the political and economic upheaval makes Russia a risky place to invest.

Japanese seafood importers have also said that they do not want to disrupt their markets by swamping them with low-priced products. Part of the Japanese business ethic is to maintain existing relationships wherever possible, to foster a steady and reliable flow of trade and, where change is necessary, to make it with minimal disruption to the status quo. Japanese businessmen like to say they are in it for the long run and are less tempted by a quick buck than Americans might be. Besides, Russian producers have a huge domestic market and existing sales and distribution channels. Processors said they expect a gradual, not immediate, shift in emphasis toward export marketing.[71]

Terry Johnson offered the following perspective of a Russian collective on Japanese investment in and imports from Russia:[72]

> Some years, Japanese boats have bought salmon from the collective but this year, Igor tells me, all they want is the roe. Last year they bought five tons of roe, this year 60 tons. They pay the equivalent of $12 for pink salmon roe. In addition, I am told, Japanese buyers take all the crab produced by fishermen of the collective. "So far there are not many foreign buyers here," Igor commented, "but the process has begun."
>
> He has plans for the collective. Its account has five to six million rubles in savings. He wants to buy a 1,000-ton-capacity frozen storage unit, a 30-ton-per-day contact freezing unit, a fillet and packing line, plus a small cargo boat for getting fish to market. He knows 6 million rubles won't be enough and he is looking for a foreign partner to invest in the operation.
>
> "The crisis is so deep now the Russians have no other choice," he said. "Japanese provide money right now but people here do not like them. Russia will be sold, to Japanese buyers or American buyers. The best thing would be for Americans to be the buyers...the process has begun and nobody can stop it."

A June 1993 Japanese trade press article described operations of Japanese importers as follows:[73]

> The Russian salmon fishery is scheduled to start this month, with operations in the Sakhalin district. Japanese importers have already sent technicians to

71 Terry Johnson, "The Russian Bear Goes Fishing," *Pacific Fishing*, March 1993.
72 Terry Johnson made these points earlier in "The Russian Bear Goes Fishing," *Pacific Fishing*, March 1993.
73 *Bill Atkinson's News Report*, June 2, 1993.

> the region in preparation for the opening of the fishery. The situation is far from settled, however. Arrangements (purchase contracts) between Japanese importers and Russian producers have not been finalized at this point, and Russian export licenses have reportedly not been issued yet. The importers, however, have sent the technicians to the same producers they used last year to avoid problems with quality and packing.

An article in July 1993 described the progress of the fishery as follows:

> The fishery for sockeye salmon in Russia—along the northwest coast of Kamchatka—has begun to pick up. More than seven floaters are reportedly operating in the region at the present. Operations in one of the fisheries has already closed, with a total landing of about 2,000 tons; about 1,000 tons have reportedly been exported to Japan. Production in the remaining fishery is projected at 3,000 to 4,000 tons. Japanese imports of sockeye salmon from Russia totaled 5,900 tons in 1992 and 7,400 tons in 1993, but this year's imports are expected to be somewhat lower than these levels.[74]

Japanese Investment in Roe Production

It appears that Japanese fisheries firms are engaging in joint venture salmon roe production similar to their activities in Alaska. For example, a 1992 Russian newspaper article stated: "Units of the fishing fleet based in Petropavlovsk have started producing a Japanese delicacy: sujiko caviar. The motherships Avagha, Sovestkaya Buryatia and Rybak Chukotki are engaged in the production, while Japanese companies are providing Petropavlovsk Base with the special equipment, technology and specialists needed for production."[75]

Other Foreign Investment

Some American companies have successfully penetrated the Russian market with processing equipment. Seattle and Bellingham fabricators have been selling pumps, cutting machines and other equipment to Russian firms for several years now, and one company has successfully marketed a modular processing unit, packaged in a box like a container van, which can be hoisted onto the deck of a floating processor. In addition, Seattle shipyards have been retrofitting Russian vessels with whole processing lines. Most of this equipment is designed for crab or pollock processing, but some of it apparently is suitable for salmon.

Foreign investment in the Russian Far East fishing industry, including the salmon industry, is not limited to the Japanese. There are frequent press accounts of investments by other countries. The following are typical of these types of articles:

> Two French engineers visited Iturup Island in the Kuriles recently. They were invited by the local company *Yasnyi* to coordinate the development of a new fish processing facility project. The processing facility will produce canned fish, fishmeal and other products.. The project will be financed by the new federal development program of the Kurils. It is expected that the project will be completed within a month and operational in the near future.[76]

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74 *Bill Atkinson's News Report*, July 27, 1994.
75 Article from "Fishermen's News," quoted in *Pacific Rim Fisheries Update*, December 1992.
76 Article from *Sakhalin Fisherman*, December 31, 1993, reprinted in Pacific Rim Fisheries Update, Volume 3, Number 12 (March 1994).

> It appears that a US company has entered a joint venture agreement for salmon gill net operations in Russian waters. The company's longliner arrived in Kushiro on the 19th, to load supplies and equipment for the operation. After taking on the necessary supplies. The vessel departed Kushiro on the 20th for Busan. The vessel reportedly has five American crew members and will take on Korean crew in Busan. It is not known whether or not Japanese technicians will be included in the crew. While the Japanese partner in the U.S. company has denied any involvement, members of the salmon industry in Japan question this. If material has been loaded in Japan, there has to be some Japanese involvement in the operation. The Japan Fishery Agency has currently skirted the issue, stating that they are not aware of any details. They are expected to watch the situation closely, however, due to the fact that ... this is the first indication of a Russia-U.S. salmon joint venture; both Korean and Japanese involvement is assumed; and this type of operation will have an effect on Japanese salmon operations in Russian waters.[77]

These kinds of press accounts do not suffice to determine the total scale of foreign investment in the Russian salmon industry, its potential long-term impacts on Russian salmon production or exports.

Summarizing foreign investment and the growth of Russian salmon exports, Peter Christiansen wrote:[78]

> The Japanese have joint-ventures operating in Sakhalin and Magadan, and likely in the Khabarovsky and Primorsky Krais as well. There are also a number of Korean companies active in the Kamchatka Region.
>
> As you can see, the Russians are not just "poised to make a big entry into traditional American markets" (in Asia). They already have... I think the real question is, "now that the Russians have entered the market, can they stay there?" The people contending that Russian production will decline due to bureaucratic confusion or the inability to adapt to a market economy have a point, but I have a hunch they don't really understand how fisheries work in post-Soviet Russia. The issues here are far different. The legal confusion has scared off a lot of potential investors, but a lot have also stayed on, especially from Asian nations. Because what they find here is not confused bureaucrats, but bureaucrats working in a familiar system of patronage and privilege.
>
> Bear in mind that the administrative-command economic system of resource distribution has not changed in Russia, despite the political changes the country has gone through. Bureaucrats still have control over resources through the old Ministry of Fisheries system in 'their' region (Kamchatka, the Russian Far East, and Moscow, in order of ascending importance), and their 'blessing' is needed to extract resources. This case even obtains if the fish you want comes from a 'joint-stock' or 'privatized' fishing enterprise. Laws mean less than finding a good patrol, and getting him on your side.

77 *Bill Atkinson's News Report*, May 26, 1993.
78 Peter H. Christiansen, Letter to Dr. Evelyn Pinkerton, November 2, 1993.

Russian bureaucrats are far from confused, and really, for many the lack of a stable legal system has been a boon. The North Americans I have seen come through here lack the patience to gain a realistic understanding of what business here involves, and to build up the trust among local bureaucrats necessary to do business. While Russians grumble about the Asian presence, I would say that they have established themselves very well in the Russian Far East salmon market, and are far better poised to keep their position than North Americans are to knock them out of it. Regarding Russia's legal confusion: this has proven a formidable barrier to regulating salmon exports, not to slowing the volume.

In sum, the present economic system—market bureaucratism, or sale of cheap resources abroad—will not hinder the growth of salmon exports to Asian markets.

X. CONCLUSIONS

This report has not provided a definitive picture of either the current condition of the Russian salmon industry or how it may change in the future. The limited available written materials and data on which this report is based are sufficient to form the beginnings of a picture of the Russian salmon industry, but the report leaves many questions unanswered.

Some Tentative Conclusions

Below we offer some tentative conclusions about the future of the Russian salmon industry and its effects on Alaska's salmon markets. However, these should be viewed as hypotheses rather than proven findings. It is possible that additional information might point to different conclusions.

Generalization about the Russian salmon industry is risky. As in Alaska, there is probably wide variation in harvesting and processing technology and in markets. The Russian salmon industry is spread over as large a region as the Alaska salmon industry. The players range from huge state-owned enterprises to small collective farms and private firms. Salmon fishing and processing takes place under widely varying conditions of access to transportation facilities, utilities and supplies. Just as these kinds of factors result in wide variation between different parts of Alaska in how salmon are harvested, processed and marketed, there is likely similar variation in Russia. This makes generalization about the Russian salmon industry risky, in particular on the basis of limited information. Alaskans are likely to hear of or visit modern Russian processing facilities producing high quality export products. They are also likely to hear of or visit archaic facilities producing lower quality products unlikely to be able to compete in export markets. Neither should be assumed to be "typical" of the entire industry.

Rapid expansion of total Russian salmon harvests and production appears unlikely. I venture this conclusion for several reasons:

- Russian projections apparently are for stable or declining harvests.
- Environmental problems associated with relatively-lax controls on resource development, which—in the absence of strong political commitment for habitat protection—pose a threat for long-term salmon production.
- There may be risk to the salmon resource posed by overharvesting in some areas in the face of insufficient enforcement of harvest restrictions and reported problems of widespread corruption.
- There are constraints on Russian harvesting and processing capacity due to limitations on available vessels, fuel, processing equipment, labor force, and transportation. In Alaska, we are used to thinking of salmon harvests as being limited primarily by the strength of salmon returns, with much of management focused on dealing with the problem of overcapacity. This is not necessarily the case in all areas of the Russian Far East. Insufficient capital may be a particular problem in salmon processing and transportation, limiting the volume of high quality products which can be produced. With regard to reports of a possible 300,000 ton Russian pink salmon harvest, a 1993 Japanese press article stated: "Russian shore-based production capacity has improved over the past two years, with increased investment in new equipment. [But] it is doubtful that they could process such a large volume of fish in one season, even if the runs were at these high levels."[79]

79 *Bill Atkinson's News Report*, June 2, 1993.

- Continuing depressed conditions in the Russian economy generally do not promise dramatic improvement any time soon in infrastructure or general business conditions.

- Continuing uncertainty and change in resource management and industrial regulation are likely to deter large-scale foreign investment. Adding to this uncertainty is the Russian propensity to tax successful foreign operations at increasingly higher rates.

Russian sockeye exports to Japan should not be a major cause for concern for the Alaska salmon industry. Russia is a relatively-small sockeye producer compared with Alaska. Data presented in this report suggest that the bulk of Russian sockeye are already exported to Japan, indicating that substantial growth in Russian sockeye exports is unlikely. Although the availability of lower-priced Russian sockeye will serve to depress Alaska prices somewhat, it cannot replace Alaska sockeye in the Japanese market. Problems with quality will also likely limit the extent to which Russian sockeye can compete with Alaska sockeye—although with Japanese investment the quality of Russian frozen sockeye production should increase.

Canned Russian pink salmon poses a long-term threat to U.S. export markets for canned pink salmon. Clearly, Russian pink salmon resources are sufficient to allow for very substantial canned pink production in the long-term. Canned Russian pinks are already reported to be having a depressing effect on prices for U.S. canned pinks in some export markets. However, expansion of Russian canned pink salmon exports will be limited by the same factors that are likely to hamper Russian export production generally, such as economic and political uncertainty, depressed economic conditions, and lack of infrastructure.

Developing More Information About the Russian Salmon Industry

If the Alaska salmon industry is to have adequate information about the extent to which the Russian salmon industry may represent a future competition and/or opportunity, clearly more and better information is needed than is provided by this report.

We suggest that the next logical step is for Alaskans to visit Russia and seek more information about the salmon industry in a systematic way. Visits to Russian salmon producing areas, discussions with Russian fisheries officials, and discussions with others in the salmon industry are clearly necessary in order to develop a clearer picture.

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